

February 22, 2024

Illinois Department of Transportation  
Keith Roberts, PE  
Acting Regional Engineer  
Division of Highways/Region 5/District 8  
1102 Eastport Plaza Drive  
Collinsville, Illinois 62234-6198

**Subject: Analytical Data for Soil Vapor Sampling According to Illinois Department of Transportation (IDOT) Permits No. 8-28548 and No. 8-28875**

Dear Mr. Roberts,

AECOM, on behalf of Shell Oil Products US (Shell), is submitting the attached analytical results for soil vapor samples collected in 2023 from the following vapor monitoring points in accordance with IDOT Permits No. 8-28548 and No. 8-28875:

- VMP-15
- VMP-55

If you have any questions or require further information, please contact Wendy Pennington at [wendy.pennington@aecom.com](mailto:wendy.pennington@aecom.com) (314-452-8929) or Samuel Fisher at [samuel.fisher@aecom.com](mailto:samuel.fisher@aecom.com) (314-296-1969).

Sincerely,  
AECOM, on behalf of Shell Oil Products US



Samuel Fisher, CHMM  
Environmental Scientist



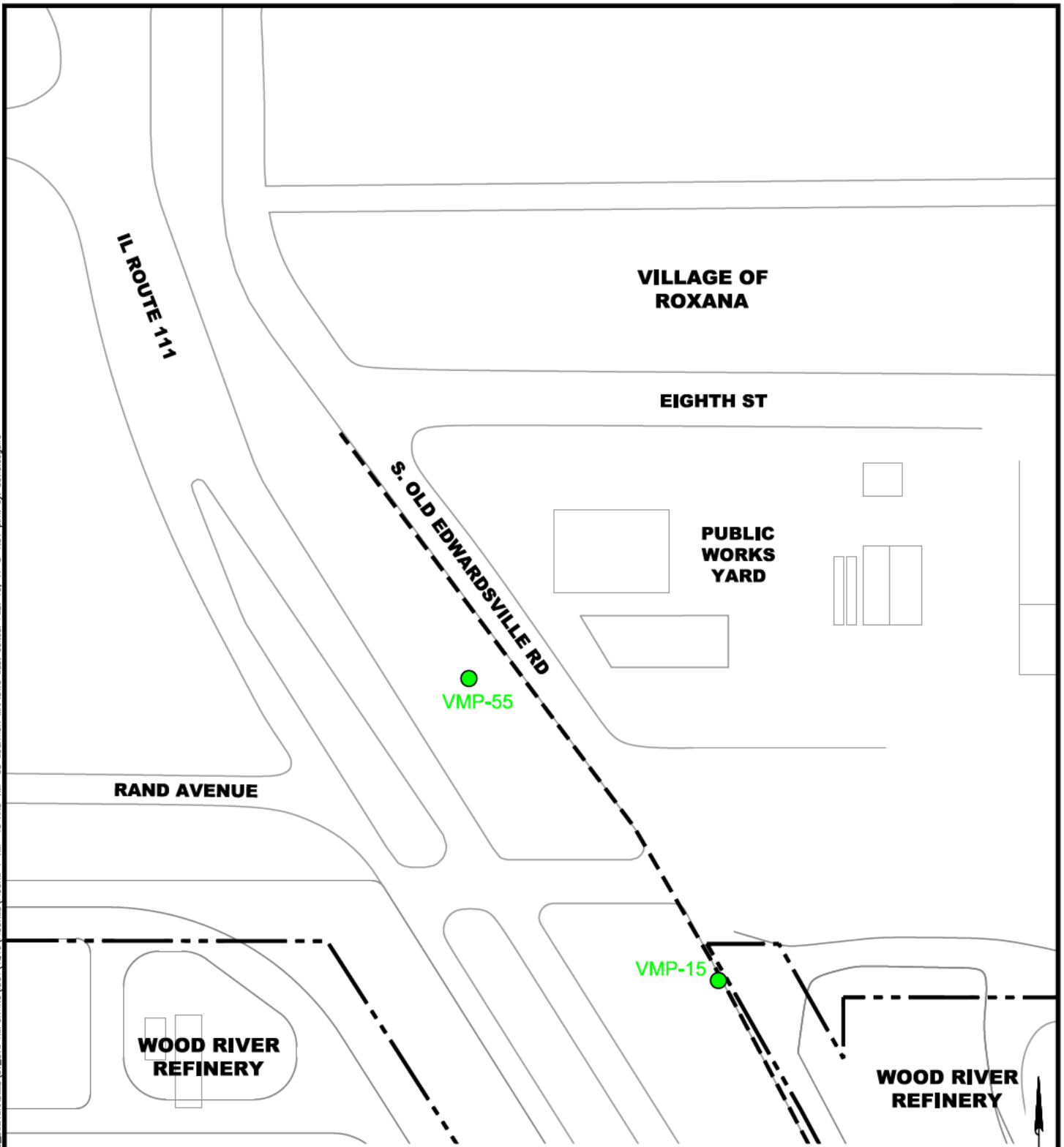
Wendy Pennington, PE  
Project Manager

cc:




Leroy Bealer, Shell  
Repositories – Roxana Public Library, Website  
Project File

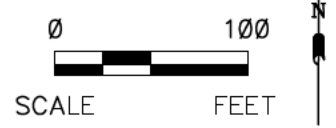
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File: P:\PROJECTS\ENVIRONMENTAL\SHLL\60477367\_ROXANA2016\6.0\_DELIVERABLES\SV\_SVE\_REPORTING\DOT\4016\FIGURES\FIGURE 1 VMP-15 AND VMP-55 LOCATION MAP.DWG Last edited: FEB. 15, 17 @ 1:51 p.m. by: david.dequire



**LEGEND**

-  VAPOR MONITORING POINT (VMP) LOCATION
-  APPROXIMATE BOUNDARY OF WOOD RIVER REFINERY
-  APPROXIMATE EAST BOUNDARY OF IL ROUTE 111 RIGHT-OF-WAY



SHELL OIL PRODUCTS US SOIL VAPOR MONITORING PROGRAM ROXANA, ILLINOIS		PROJECT NO. 60527968
<b>AECOM</b>		
DRN. BY:djd Feb 2017 DSGN. BY:djd CHKD. BY:smf	VMP-15 and VMP-55 Location Map	FIG. NO. 1

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2/6/2023

Mr. Samuel Fisher

AECOM

100 N. Broadway, 20th Floor

St. Louis MO 63102

Project Name: Roxana Quarterly Soil Vapor

Project #: 60697537 - 4.1.2

Workorder #: 2301438A

Dear Mr. Samuel Fisher

The following report includes the data for the above referenced project for sample(s) received on 1/25/2023 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker

Project Manager

**WORK ORDER #: 2301438A**

Work Order Summary

<b>CLIENT:</b>	Mr. Samuel Fisher AECOM 100 N. Broadway, 20th Floor St. Louis, MO 63102	<b>BILL TO:</b>	Accounts Payable Austin AECOM PO Box 203970 Austin, TX 78720
<b>PHONE:</b>	314-296-1969	<b>P.O. #</b>	150605
<b>FAX:</b>		<b>PROJECT #</b>	60697537 - 4.1.2 Roxana Quarterly Soil
<b>DATE RECEIVED:</b>	01/25/2023	<b>CONTACT:</b>	Vapor Brran Whittaker
<b>DATE COMPLETED:</b>	02/06/2023		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	VMP-15-5-012423	TO-15	5.0 "Hg	10 psi
02A	VMP-15-21.5-012423	TO-15	5.0 "Hg	10 psi
03A	VMP-15-25.5-012423	TO-15	5.5 "Hg	10 psi
04A	VMP-15-29-012423	TO-15	6.0 "Hg	10 psi
05A	VMP-55-20-012423	TO-15	5.0 "Hg	10 psi
06A	Lab Blank	TO-15	NA	NA
06B	Lab Blank	TO-15	NA	NA
07A	CCV	TO-15	NA	NA
07B	CCV	TO-15	NA	NA
08A	LCS	TO-15	NA	NA
08AA	LCSD	TO-15	NA	NA
08B	LCS	TO-15	NA	NA
08BB	LCSD	TO-15	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 02/06/23

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005-017, Effective date: 10/18/2022, Expiration date: 10/17/2023.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

*This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.*

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

**LABORATORY NARRATIVE**  
**EPA Method TO-15**  
**AECOM**  
**Workorder# 2301438A**

Five 1 Liter Summa Canister samples were received on January 25, 2023. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

Non-standard compounds may have different acceptance criteria than the standard TO-14A/TO-15 compound list as per contract or verbal agreement.

Dilution was performed on sample VMP-55-20-012423 due to the presence of high level target species.

**Definition of Data Qualifying Flags**

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds  
EPA METHOD TO-15 GC/MS FULL SCAN**

**Client Sample ID: VMP-15-5-012423**

**Lab ID#: 2301438A-01A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Freon 12	1.0	0.47 J	5.0	2.3 J
Chloroform	1.0	0.31 J	4.9	1.5 J

**Client Sample ID: VMP-15-21.5-012423**

**Lab ID#: 2301438A-02A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Freon 12	1.0	0.39 J	5.0	1.9 J
Chloroform	1.0	0.42 J	4.9	2.0 J

**Client Sample ID: VMP-15-25.5-012423**

**Lab ID#: 2301438A-03A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Freon 12	1.0	0.47 J	5.1	2.3 J
Chloroform	1.0	3.4	5.0	16

**Client Sample ID: VMP-15-29-012423**

**Lab ID#: 2301438A-04A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Freon 12	1.0	0.48 J	5.2	2.4 J
Chloroform	1.0	7.4	5.1	36
Bromodichloromethane	1.0	0.28 J	7.0	1.9 J
Tetrachloroethene	1.0	0.23 J	7.1	1.5 J

**Client Sample ID: VMP-55-20-012423**

**Lab ID#: 2301438A-05A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Hexane	500	2800	1800	10000
Cyclohexane	500	35000	1700	120000



**Summary of Detected Compounds  
EPA METHOD TO-15 GC/MS**

**Client Sample ID: VMP-55-20-012423**

**Lab ID#: 2301438A-05A**

2,2,4-Trimethylpentane	500	62000	2400	290000
Toluene	500	330 J	1900	1200 J
Butane	2000	120000	4800	280000
Isopentane	2000	630000	6000	1900000



Air Toxics

Client Sample ID: VMP-15-5-012423

Lab ID#: 2301438A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012718	Date of Collection:	1/24/23 8:48:00 AM
Dil. Factor:	2.02	Date of Analysis:	1/27/23 10:16 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.0	0.47 J	5.0	2.3 J
Freon 114	1.0	Not Detected	7.1	Not Detected
Chloromethane	10	Not Detected	21	Not Detected
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,3-Butadiene	1.0	Not Detected	2.2	Not Detected
Bromomethane	10	Not Detected	39	Not Detected
Chloroethane	4.0	Not Detected	11	Not Detected
Freon 11	1.0	Not Detected	5.7	Not Detected
Ethanol	10	Not Detected	19	Not Detected
Freon 113	1.0	Not Detected	7.7	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Acetone	10	Not Detected	24	Not Detected
2-Propanol	4.0	Not Detected	9.9	Not Detected
Carbon Disulfide	4.0	Not Detected	12	Not Detected
3-Chloropropene	4.0	Not Detected	13	Not Detected
Methylene Chloride	10	Not Detected	35	Not Detected
Methyl tert-butyl ether	4.0	Not Detected	14	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Hexane	1.0	Not Detected	3.6	Not Detected
1,1-Dichloroethane	1.0	Not Detected	4.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.0	Not Detected	12	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Tetrahydrofuran	1.0	Not Detected	3.0	Not Detected
Chloroform	1.0	0.31 J	4.9	1.5 J
1,1,1-Trichloroethane	1.0	Not Detected	5.5	Not Detected
Cyclohexane	1.0	Not Detected	3.5	Not Detected
Carbon Tetrachloride	1.0	Not Detected	6.4	Not Detected
2,2,4-Trimethylpentane	1.0	Not Detected	4.7	Not Detected
Benzene	1.0	Not Detected	3.2	Not Detected
1,2-Dichloroethane	1.0	Not Detected	4.1	Not Detected
Heptane	1.0	Not Detected	4.1	Not Detected
Trichloroethene	1.0	Not Detected	5.4	Not Detected
1,2-Dichloropropane	1.0	Not Detected	4.7	Not Detected
1,4-Dioxane	4.0	Not Detected	14	Not Detected
Bromodichloromethane	1.0	Not Detected	6.8	Not Detected
cis-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
4-Methyl-2-pentanone	1.0	Not Detected	4.1	Not Detected
Toluene	2.0	Not Detected	7.6	Not Detected
trans-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
1,1,2-Trichloroethane	1.0	Not Detected	5.5	Not Detected
Tetrachloroethene	1.0	Not Detected	6.8	Not Detected
2-Hexanone	4.0	Not Detected	16	Not Detected



Air Toxics

Client Sample ID: VMP-15-5-012423

Lab ID#: 2301438A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012718	Date of Collection:	1/24/23 8:48:00 AM
Dil. Factor:	2.02	Date of Analysis:	1/27/23 10:16 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.0	Not Detected	8.6	Not Detected
1,2-Dibromoethane (EDB)	1.0	Not Detected	7.8	Not Detected
Chlorobenzene	1.0	Not Detected	4.6	Not Detected
Ethyl Benzene	1.0	Not Detected	4.4	Not Detected
m,p-Xylene	1.0	Not Detected	4.4	Not Detected
o-Xylene	1.0	Not Detected	4.4	Not Detected
Styrene	1.0	Not Detected	4.3	Not Detected
Bromoform	1.0	Not Detected	10	Not Detected
Cumene	1.0	Not Detected	5.0	Not Detected
1,1,2,2-Tetrachloroethane	1.0	Not Detected	6.9	Not Detected
Propylbenzene	1.0	Not Detected	5.0	Not Detected
4-Ethyltoluene	1.0	Not Detected	5.0	Not Detected
1,3,5-Trimethylbenzene	1.0	Not Detected	5.0	Not Detected
1,2,4-Trimethylbenzene	1.0	Not Detected	5.0	Not Detected
1,3-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
1,4-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
alpha-Chlorotoluene	1.0	Not Detected	5.2	Not Detected
1,2-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
1,2,4-Trichlorobenzene	4.0	Not Detected	30	Not Detected
Hexachlorobutadiene	4.0	Not Detected	43	Not Detected
Butane	4.0	Not Detected	9.6	Not Detected
Isopentane	4.0	Not Detected	12	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	95	70-130
1,2-Dichloroethane-d4	125	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: VMP-15-21.5-012423

Lab ID#: 2301438A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012719	Date of Collection:	1/24/23 9:04:00 AM
Dil. Factor:	2.02	Date of Analysis:	1/27/23 10:47 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.0	0.39 J	5.0	1.9 J
Freon 114	1.0	Not Detected	7.1	Not Detected
Chloromethane	10	Not Detected	21	Not Detected
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,3-Butadiene	1.0	Not Detected	2.2	Not Detected
Bromomethane	10	Not Detected	39	Not Detected
Chloroethane	4.0	Not Detected	11	Not Detected
Freon 11	1.0	Not Detected	5.7	Not Detected
Ethanol	10	Not Detected	19	Not Detected
Freon 113	1.0	Not Detected	7.7	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Acetone	10	Not Detected	24	Not Detected
2-Propanol	4.0	Not Detected	9.9	Not Detected
Carbon Disulfide	4.0	Not Detected	12	Not Detected
3-Chloropropene	4.0	Not Detected	13	Not Detected
Methylene Chloride	10	Not Detected	35	Not Detected
Methyl tert-butyl ether	4.0	Not Detected	14	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Hexane	1.0	Not Detected	3.6	Not Detected
1,1-Dichloroethane	1.0	Not Detected	4.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.0	Not Detected	12	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Tetrahydrofuran	1.0	Not Detected	3.0	Not Detected
Chloroform	1.0	0.42 J	4.9	2.0 J
1,1,1-Trichloroethane	1.0	Not Detected	5.5	Not Detected
Cyclohexane	1.0	Not Detected	3.5	Not Detected
Carbon Tetrachloride	1.0	Not Detected	6.4	Not Detected
2,2,4-Trimethylpentane	1.0	Not Detected	4.7	Not Detected
Benzene	1.0	Not Detected	3.2	Not Detected
1,2-Dichloroethane	1.0	Not Detected	4.1	Not Detected
Heptane	1.0	Not Detected	4.1	Not Detected
Trichloroethene	1.0	Not Detected	5.4	Not Detected
1,2-Dichloropropane	1.0	Not Detected	4.7	Not Detected
1,4-Dioxane	4.0	Not Detected	14	Not Detected
Bromodichloromethane	1.0	Not Detected	6.8	Not Detected
cis-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
4-Methyl-2-pentanone	1.0	Not Detected	4.1	Not Detected
Toluene	2.0	Not Detected	7.6	Not Detected
trans-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
1,1,2-Trichloroethane	1.0	Not Detected	5.5	Not Detected
Tetrachloroethene	1.0	Not Detected	6.8	Not Detected
2-Hexanone	4.0	Not Detected	16	Not Detected

Client Sample ID: VMP-15-21.5-012423

Lab ID#: 2301438A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012719	Date of Collection:	1/24/23 9:04:00 AM
Dil. Factor:	2.02	Date of Analysis:	1/27/23 10:47 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.0	Not Detected	8.6	Not Detected
1,2-Dibromoethane (EDB)	1.0	Not Detected	7.8	Not Detected
Chlorobenzene	1.0	Not Detected	4.6	Not Detected
Ethyl Benzene	1.0	Not Detected	4.4	Not Detected
m,p-Xylene	1.0	Not Detected	4.4	Not Detected
o-Xylene	1.0	Not Detected	4.4	Not Detected
Styrene	1.0	Not Detected	4.3	Not Detected
Bromoform	1.0	Not Detected	10	Not Detected
Cumene	1.0	Not Detected	5.0	Not Detected
1,1,2,2-Tetrachloroethane	1.0	Not Detected	6.9	Not Detected
Propylbenzene	1.0	Not Detected	5.0	Not Detected
4-Ethyltoluene	1.0	Not Detected	5.0	Not Detected
1,3,5-Trimethylbenzene	1.0	Not Detected	5.0	Not Detected
1,2,4-Trimethylbenzene	1.0	Not Detected	5.0	Not Detected
1,3-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
1,4-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
alpha-Chlorotoluene	1.0	Not Detected	5.2	Not Detected
1,2-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
1,2,4-Trichlorobenzene	4.0	Not Detected	30	Not Detected
Hexachlorobutadiene	4.0	Not Detected	43	Not Detected
Butane	4.0	Not Detected	9.6	Not Detected
Isopentane	4.0	Not Detected	12	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	95	70-130
1,2-Dichloroethane-d4	121	70-130
4-Bromofluorobenzene	109	70-130



Air Toxics

Client Sample ID: VMP-15-25.5-012423

Lab ID#: 2301438A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012720	Date of Collection:	1/24/23 9:24:00 AM
Dil. Factor:	2.06	Date of Analysis:	1/27/23 11:19 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.0	0.47 J	5.1	2.3 J
Freon 114	1.0	Not Detected	7.2	Not Detected
Chloromethane	10	Not Detected	21	Not Detected
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,3-Butadiene	1.0	Not Detected	2.3	Not Detected
Bromomethane	10	Not Detected	40	Not Detected
Chloroethane	4.1	Not Detected	11	Not Detected
Freon 11	1.0	Not Detected	5.8	Not Detected
Ethanol	10	Not Detected	19	Not Detected
Freon 113	1.0	Not Detected	7.9	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Acetone	10	Not Detected	24	Not Detected
2-Propanol	4.1	Not Detected	10	Not Detected
Carbon Disulfide	4.1	Not Detected	13	Not Detected
3-Chloropropene	4.1	Not Detected	13	Not Detected
Methylene Chloride	10	Not Detected	36	Not Detected
Methyl tert-butyl ether	4.1	Not Detected	15	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Hexane	1.0	Not Detected	3.6	Not Detected
1,1-Dichloroethane	1.0	Not Detected	4.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.1	Not Detected	12	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Tetrahydrofuran	1.0	Not Detected	3.0	Not Detected
Chloroform	1.0	3.4	5.0	16
1,1,1-Trichloroethane	1.0	Not Detected	5.6	Not Detected
Cyclohexane	1.0	Not Detected	3.5	Not Detected
Carbon Tetrachloride	1.0	Not Detected	6.5	Not Detected
2,2,4-Trimethylpentane	1.0	Not Detected	4.8	Not Detected
Benzene	1.0	Not Detected	3.3	Not Detected
1,2-Dichloroethane	1.0	Not Detected	4.2	Not Detected
Heptane	1.0	Not Detected	4.2	Not Detected
Trichloroethene	1.0	Not Detected	5.5	Not Detected
1,2-Dichloropropane	1.0	Not Detected	4.8	Not Detected
1,4-Dioxane	4.1	Not Detected	15	Not Detected
Bromodichloromethane	1.0	Not Detected	6.9	Not Detected
cis-1,3-Dichloropropene	1.0	Not Detected	4.7	Not Detected
4-Methyl-2-pentanone	1.0	Not Detected	4.2	Not Detected
Toluene	2.1	Not Detected	7.8	Not Detected
trans-1,3-Dichloropropene	1.0	Not Detected	4.7	Not Detected
1,1,2-Trichloroethane	1.0	Not Detected	5.6	Not Detected
Tetrachloroethene	1.0	Not Detected	7.0	Not Detected
2-Hexanone	4.1	Not Detected	17	Not Detected

Client Sample ID: VMP-15-25.5-012423

Lab ID#: 2301438A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012720	Date of Collection:	1/24/23 9:24:00 AM
Dil. Factor:	2.06	Date of Analysis:	1/27/23 11:19 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.0	Not Detected	8.8	Not Detected
1,2-Dibromoethane (EDB)	1.0	Not Detected	7.9	Not Detected
Chlorobenzene	1.0	Not Detected	4.7	Not Detected
Ethyl Benzene	1.0	Not Detected	4.5	Not Detected
m,p-Xylene	1.0	Not Detected	4.5	Not Detected
o-Xylene	1.0	Not Detected	4.5	Not Detected
Styrene	1.0	Not Detected	4.4	Not Detected
Bromoform	1.0	Not Detected	11	Not Detected
Cumene	1.0	Not Detected	5.1	Not Detected
1,1,2,2-Tetrachloroethane	1.0	Not Detected	7.1	Not Detected
Propylbenzene	1.0	Not Detected	5.1	Not Detected
4-Ethyltoluene	1.0	Not Detected	5.1	Not Detected
1,3,5-Trimethylbenzene	1.0	Not Detected	5.1	Not Detected
1,2,4-Trimethylbenzene	1.0	Not Detected	5.1	Not Detected
1,3-Dichlorobenzene	1.0	Not Detected	6.2	Not Detected
1,4-Dichlorobenzene	1.0	Not Detected	6.2	Not Detected
alpha-Chlorotoluene	1.0	Not Detected	5.3	Not Detected
1,2-Dichlorobenzene	1.0	Not Detected	6.2	Not Detected
1,2,4-Trichlorobenzene	4.1	Not Detected	30	Not Detected
Hexachlorobutadiene	4.1	Not Detected	44	Not Detected
Butane	4.1	Not Detected	9.8	Not Detected
Isopentane	4.1	Not Detected	12	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	120	70-130
4-Bromofluorobenzene	109	70-130



Air Toxics

Client Sample ID: VMP-15-29-012423

Lab ID#: 2301438A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012721	Date of Collection:	1/24/23 9:44:00 AM
Dil. Factor:	2.10	Date of Analysis:	1/27/23 11:50 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.0	0.48 J	5.2	2.4 J
Freon 114	1.0	Not Detected	7.3	Not Detected
Chloromethane	10	Not Detected	22	Not Detected
Vinyl Chloride	1.0	Not Detected	2.7	Not Detected
1,3-Butadiene	1.0	Not Detected	2.3	Not Detected
Bromomethane	10	Not Detected	41	Not Detected
Chloroethane	4.2	Not Detected	11	Not Detected
Freon 11	1.0	Not Detected	5.9	Not Detected
Ethanol	10	Not Detected	20	Not Detected
Freon 113	1.0	Not Detected	8.0	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.2	Not Detected
Acetone	10	Not Detected	25	Not Detected
2-Propanol	4.2	Not Detected	10	Not Detected
Carbon Disulfide	4.2	Not Detected	13	Not Detected
3-Chloropropene	4.2	Not Detected	13	Not Detected
Methylene Chloride	10	Not Detected	36	Not Detected
Methyl tert-butyl ether	4.2	Not Detected	15	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.2	Not Detected
Hexane	1.0	Not Detected	3.7	Not Detected
1,1-Dichloroethane	1.0	Not Detected	4.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.2	Not Detected	12	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.2	Not Detected
Tetrahydrofuran	1.0	Not Detected	3.1	Not Detected
Chloroform	1.0	7.4	5.1	36
1,1,1-Trichloroethane	1.0	Not Detected	5.7	Not Detected
Cyclohexane	1.0	Not Detected	3.6	Not Detected
Carbon Tetrachloride	1.0	Not Detected	6.6	Not Detected
2,2,4-Trimethylpentane	1.0	Not Detected	4.9	Not Detected
Benzene	1.0	Not Detected	3.4	Not Detected
1,2-Dichloroethane	1.0	Not Detected	4.2	Not Detected
Heptane	1.0	Not Detected	4.3	Not Detected
Trichloroethene	1.0	Not Detected	5.6	Not Detected
1,2-Dichloropropane	1.0	Not Detected	4.8	Not Detected
1,4-Dioxane	4.2	Not Detected	15	Not Detected
Bromodichloromethane	1.0	0.28 J	7.0	1.9 J
cis-1,3-Dichloropropene	1.0	Not Detected	4.8	Not Detected
4-Methyl-2-pentanone	1.0	Not Detected	4.3	Not Detected
Toluene	2.1	Not Detected	7.9	Not Detected
trans-1,3-Dichloropropene	1.0	Not Detected	4.8	Not Detected
1,1,2-Trichloroethane	1.0	Not Detected	5.7	Not Detected
Tetrachloroethene	1.0	0.23 J	7.1	1.5 J
2-Hexanone	4.2	Not Detected	17	Not Detected



Client Sample ID: VMP-15-29-012423

Lab ID#: 2301438A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012721	Date of Collection:	1/24/23 9:44:00 AM
Dil. Factor:	2.10	Date of Analysis:	1/27/23 11:50 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.0	Not Detected	8.9	Not Detected
1,2-Dibromoethane (EDB)	1.0	Not Detected	8.1	Not Detected
Chlorobenzene	1.0	Not Detected	4.8	Not Detected
Ethyl Benzene	1.0	Not Detected	4.6	Not Detected
m,p-Xylene	1.0	Not Detected	4.6	Not Detected
o-Xylene	1.0	Not Detected	4.6	Not Detected
Styrene	1.0	Not Detected	4.5	Not Detected
Bromoform	1.0	Not Detected	11	Not Detected
Cumene	1.0	Not Detected	5.2	Not Detected
1,1,2,2-Tetrachloroethane	1.0	Not Detected	7.2	Not Detected
Propylbenzene	1.0	Not Detected	5.2	Not Detected
4-Ethyltoluene	1.0	Not Detected	5.2	Not Detected
1,3,5-Trimethylbenzene	1.0	Not Detected	5.2	Not Detected
1,2,4-Trimethylbenzene	1.0	Not Detected	5.2	Not Detected
1,3-Dichlorobenzene	1.0	Not Detected	6.3	Not Detected
1,4-Dichlorobenzene	1.0	Not Detected	6.3	Not Detected
alpha-Chlorotoluene	1.0	Not Detected	5.4	Not Detected
1,2-Dichlorobenzene	1.0	Not Detected	6.3	Not Detected
1,2,4-Trichlorobenzene	4.2	Not Detected	31	Not Detected
Hexachlorobutadiene	4.2	Not Detected	45	Not Detected
Butane	4.2	Not Detected	10	Not Detected
Isopentane	4.2	Not Detected	12	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	118	70-130
4-Bromofluorobenzene	110	70-130



Air Toxics

Client Sample ID: VMP-55-20-012423

Lab ID#: 2301438A-05A

EPA METHOD TO-15 GC/MS

File Name:	14013016	Date of Collection:	1/24/23 10:41:00 AM
Dil. Factor:	101	Date of Analysis:	1/30/23 03:13 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	500	Not Detected	2500	Not Detected
Freon 114	500	Not Detected	3500	Not Detected
Chloromethane	2000	Not Detected	4200	Not Detected
Vinyl Chloride	500	Not Detected	1300	Not Detected
1,3-Butadiene	500	Not Detected	1100	Not Detected
Bromomethane	2000	Not Detected	7800	Not Detected
Chloroethane	2000	Not Detected	5300	Not Detected
Freon 11	500	Not Detected	2800	Not Detected
Ethanol	2500	Not Detected	4800	Not Detected
Freon 113	500	Not Detected	3900	Not Detected
1,1-Dichloroethene	500	Not Detected	2000	Not Detected
Acetone	2000	Not Detected	4800	Not Detected
2-Propanol	2500	Not Detected	6200	Not Detected
Carbon Disulfide	2000	Not Detected	6300	Not Detected
3-Chloropropene	2000	Not Detected	6300	Not Detected
Methylene Chloride	2000	Not Detected	7000	Not Detected
Methyl tert-butyl ether	500	Not Detected	1800	Not Detected
trans-1,2-Dichloroethene	500	Not Detected	2000	Not Detected
Hexane	500	2800	1800	10000
1,1-Dichloroethane	500	Not Detected	2000	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2000	Not Detected	6000	Not Detected
cis-1,2-Dichloroethene	500	Not Detected	2000	Not Detected
Tetrahydrofuran	500	Not Detected	1500	Not Detected
Chloroform	500	Not Detected	2500	Not Detected
1,1,1-Trichloroethane	500	Not Detected	2800	Not Detected
Cyclohexane	500	35000	1700	120000
Carbon Tetrachloride	500	Not Detected	3200	Not Detected
2,2,4-Trimethylpentane	500	62000	2400	290000
Benzene	500	Not Detected	1600	Not Detected
1,2-Dichloroethane	500	Not Detected	2000	Not Detected
Heptane	500	Not Detected	2100	Not Detected
Trichloroethene	500	Not Detected	2700	Not Detected
1,2-Dichloropropane	500	Not Detected	2300	Not Detected
1,4-Dioxane	2000	Not Detected	7300	Not Detected
Bromodichloromethane	500	Not Detected	3400	Not Detected
cis-1,3-Dichloropropene	500	Not Detected	2300	Not Detected
4-Methyl-2-pentanone	2000	Not Detected	8300	Not Detected
Toluene	500	330 J	1900	1200 J
trans-1,3-Dichloropropene	500	Not Detected	2300	Not Detected
1,1,2-Trichloroethane	500	Not Detected	2800	Not Detected
Tetrachloroethene	500	Not Detected	3400	Not Detected
2-Hexanone	2000	Not Detected	8300	Not Detected

Client Sample ID: VMP-55-20-012423

Lab ID#: 2301438A-05A

EPA METHOD TO-15 GC/MS

File Name:	14013016	Date of Collection:	1/24/23 10:41:00 AM
Dil. Factor:	101	Date of Analysis:	1/30/23 03:13 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	500	Not Detected	4300	Not Detected
1,2-Dibromoethane (EDB)	500	Not Detected	3900	Not Detected
Chlorobenzene	500	Not Detected	2300	Not Detected
Ethyl Benzene	500	Not Detected	2200	Not Detected
m,p-Xylene	500	Not Detected	2200	Not Detected
o-Xylene	500	Not Detected	2200	Not Detected
Styrene	500	Not Detected	2200	Not Detected
Bromoform	500	Not Detected	5200	Not Detected
Cumene	500	Not Detected	2500	Not Detected
1,1,2,2-Tetrachloroethane	500	Not Detected	3500	Not Detected
Propylbenzene	500	Not Detected	2500	Not Detected
4-Ethyltoluene	500	Not Detected	2500	Not Detected
1,3,5-Trimethylbenzene	500	Not Detected	2500	Not Detected
1,2,4-Trimethylbenzene	500	Not Detected	2500	Not Detected
1,3-Dichlorobenzene	500	Not Detected	3000	Not Detected
1,4-Dichlorobenzene	500	Not Detected	3000	Not Detected
alpha-Chlorotoluene	500	Not Detected	2600	Not Detected
1,2-Dichlorobenzene	500	Not Detected	3000	Not Detected
1,2,4-Trichlorobenzene	2000	Not Detected	15000	Not Detected
Hexachlorobutadiene	2000	Not Detected	22000	Not Detected
Butane	2000	120000	4800	280000
Isopentane	2000	630000	6000	1900000

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	119	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2301438A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012706a	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/27/23 12:33 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	5.0	Not Detected	9.4	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	1.0	Not Detected	3.8	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

Client Sample ID: Lab Blank

Lab ID#: 2301438A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012706a	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/27/23 12:33 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Butane	2.0	Not Detected	4.8	Not Detected
Isopentane	2.0	Not Detected	5.9	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	119	70-130
4-Bromofluorobenzene	108	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2301438A-06B

EPA METHOD TO-15 GC/MS

File Name:	14013006d	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/30/23 09:57 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	5.0	Not Detected	25	Not Detected
Freon 114	5.0	Not Detected	35	Not Detected
Chloromethane	20	Not Detected	41	Not Detected
Vinyl Chloride	5.0	Not Detected	13	Not Detected
1,3-Butadiene	5.0	Not Detected	11	Not Detected
Bromomethane	20	Not Detected	78	Not Detected
Chloroethane	20	Not Detected	53	Not Detected
Freon 11	5.0	Not Detected	28	Not Detected
Ethanol	25	Not Detected	47	Not Detected
Freon 113	5.0	Not Detected	38	Not Detected
1,1-Dichloroethene	5.0	Not Detected	20	Not Detected
Acetone	20	Not Detected	48	Not Detected
2-Propanol	25	Not Detected	61	Not Detected
Carbon Disulfide	20	Not Detected	62	Not Detected
3-Chloropropene	20	Not Detected	63	Not Detected
Methylene Chloride	20	Not Detected	69	Not Detected
Methyl tert-butyl ether	5.0	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Hexane	5.0	Not Detected	18	Not Detected
1,1-Dichloroethane	5.0	Not Detected	20	Not Detected
2-Butanone (Methyl Ethyl Ketone)	20	Not Detected	59	Not Detected
cis-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Tetrahydrofuran	5.0	Not Detected	15	Not Detected
Chloroform	5.0	Not Detected	24	Not Detected
1,1,1-Trichloroethane	5.0	Not Detected	27	Not Detected
Cyclohexane	5.0	Not Detected	17	Not Detected
Carbon Tetrachloride	5.0	Not Detected	31	Not Detected
2,2,4-Trimethylpentane	5.0	Not Detected	23	Not Detected
Benzene	5.0	Not Detected	16	Not Detected
1,2-Dichloroethane	5.0	Not Detected	20	Not Detected
Heptane	5.0	Not Detected	20	Not Detected
Trichloroethene	5.0	Not Detected	27	Not Detected
1,2-Dichloropropane	5.0	Not Detected	23	Not Detected
1,4-Dioxane	20	Not Detected	72	Not Detected
Bromodichloromethane	5.0	Not Detected	34	Not Detected
cis-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected
4-Methyl-2-pentanone	20	Not Detected	82	Not Detected
Toluene	5.0	Not Detected	19	Not Detected
trans-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected
1,1,2-Trichloroethane	5.0	Not Detected	27	Not Detected
Tetrachloroethene	5.0	Not Detected	34	Not Detected
2-Hexanone	20	Not Detected	82	Not Detected

Client Sample ID: Lab Blank

Lab ID#: 2301438A-06B

EPA METHOD TO-15 GC/MS

File Name:	14013006d	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/30/23 09:57 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	5.0	Not Detected	42	Not Detected
1,2-Dibromoethane (EDB)	5.0	Not Detected	38	Not Detected
Chlorobenzene	5.0	Not Detected	23	Not Detected
Ethyl Benzene	5.0	Not Detected	22	Not Detected
m,p-Xylene	5.0	Not Detected	22	Not Detected
o-Xylene	5.0	Not Detected	22	Not Detected
Styrene	5.0	Not Detected	21	Not Detected
Bromoform	5.0	Not Detected	52	Not Detected
Cumene	5.0	Not Detected	24	Not Detected
1,1,2,2-Tetrachloroethane	5.0	Not Detected	34	Not Detected
Propylbenzene	5.0	Not Detected	24	Not Detected
4-Ethyltoluene	5.0	Not Detected	24	Not Detected
1,3,5-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,2,4-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,3-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,4-Dichlorobenzene	5.0	Not Detected	30	Not Detected
alpha-Chlorotoluene	5.0	Not Detected	26	Not Detected
1,2-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,2,4-Trichlorobenzene	20	Not Detected	150	Not Detected
Hexachlorobutadiene	20	Not Detected	210	Not Detected
Butane	20	Not Detected	48	Not Detected
Isopentane	20	Not Detected	59	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	122	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	96	70-130

Client Sample ID: CCV

Lab ID#: 2301438A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012702	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/27/23 10:08 AM

Compound	%Recovery
Freon 12	112
Freon 114	91
Chloromethane	94
Vinyl Chloride	72
1,3-Butadiene	87
Bromomethane	84
Chloroethane	76
Freon 11	115
Ethanol	82
Freon 113	94
1,1-Dichloroethene	84
Acetone	82
2-Propanol	85
Carbon Disulfide	81
3-Chloropropene	85
Methylene Chloride	88
Methyl tert-butyl ether	91
trans-1,2-Dichloroethene	85
Hexane	85
1,1-Dichloroethane	92
2-Butanone (Methyl Ethyl Ketone)	78
cis-1,2-Dichloroethene	86
Tetrahydrofuran	85
Chloroform	94
1,1,1-Trichloroethane	103
Cyclohexane	80
Carbon Tetrachloride	118
2,2,4-Trimethylpentane	90
Benzene	92
1,2-Dichloroethane	116
Heptane	88
Trichloroethene	99
1,2-Dichloropropane	91
1,4-Dioxane	90
Bromodichloromethane	108
cis-1,3-Dichloropropene	96
4-Methyl-2-pentanone	87
Toluene	94
trans-1,3-Dichloropropene	102
1,1,2-Trichloroethane	96
Tetrachloroethene	108
2-Hexanone	85



Client Sample ID: CCV

Lab ID#: 2301438A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012702	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/27/23 10:08 AM

Compound	%Recovery
Dibromochloromethane	108
1,2-Dibromoethane (EDB)	98
Chlorobenzene	96
Ethyl Benzene	101
m,p-Xylene	102
o-Xylene	102
Styrene	104
Bromoform	114
Cumene	105
1,1,2,2-Tetrachloroethane	92
Propylbenzene	101
4-Ethyltoluene	106
1,3,5-Trimethylbenzene	106
1,2,4-Trimethylbenzene	116
1,3-Dichlorobenzene	114
1,4-Dichlorobenzene	113
alpha-Chlorotoluene	109
1,2-Dichlorobenzene	114
1,2,4-Trichlorobenzene	120
Hexachlorobutadiene	138 Q
Butane	67
Isopentane	78

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	114	70-130
4-Bromofluorobenzene	112	70-130

Client Sample ID: CCV

Lab ID#: 2301438A-07B

EPA METHOD TO-15 GC/MS

File Name:	14013002	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/30/23 08:11 AM

Compound	%Recovery
Freon 12	112
Freon 114	97
Chloromethane	102
Vinyl Chloride	100
1,3-Butadiene	95
Bromomethane	111
Chloroethane	92
Freon 11	118
Ethanol	99
Freon 113	108
1,1-Dichloroethene	110
Acetone	104
2-Propanol	108
Carbon Disulfide	95
3-Chloropropene	92
Methylene Chloride	128
Methyl tert-butyl ether	100
trans-1,2-Dichloroethene	89
Hexane	99
1,1-Dichloroethane	106
2-Butanone (Methyl Ethyl Ketone)	94
cis-1,2-Dichloroethene	97
Tetrahydrofuran	106
Chloroform	109
1,1,1-Trichloroethane	106
Cyclohexane	89
Carbon Tetrachloride	111
2,2,4-Trimethylpentane	105
Benzene	101
1,2-Dichloroethane	122
Heptane	96
Trichloroethene	110
1,2-Dichloropropane	96
1,4-Dioxane	99
Bromodichloromethane	110
cis-1,3-Dichloropropene	97
4-Methyl-2-pentanone	91
Toluene	100
trans-1,3-Dichloropropene	98
1,1,2-Trichloroethane	96
Tetrachloroethene	103
2-Hexanone	97

Client Sample ID: CCV

Lab ID#: 2301438A-07B

EPA METHOD TO-15 GC/MS

File Name:	14013002	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/30/23 08:11 AM

Compound	%Recovery
Dibromochloromethane	105
1,2-Dibromoethane (EDB)	102
Chlorobenzene	102
Ethyl Benzene	100
m,p-Xylene	97
o-Xylene	98
Styrene	98
Bromoform	103
Cumene	101
1,1,2,2-Tetrachloroethane	104
Propylbenzene	100
4-Ethyltoluene	105
1,3,5-Trimethylbenzene	111
1,2,4-Trimethylbenzene	108
1,3-Dichlorobenzene	106
1,4-Dichlorobenzene	108
alpha-Chlorotoluene	87
1,2-Dichlorobenzene	108
1,2,4-Trichlorobenzene	93
Hexachlorobutadiene	89
Butane	94
Isopentane	121

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	120	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 2301438A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012704	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/27/23 11:05 AM

Compound	%Recovery	Method Limits
Freon 12	114	70-130
Freon 114	93	70-130
Chloromethane	94	70-130
Vinyl Chloride	82	70-130
1,3-Butadiene	91	70-130
Bromomethane	85	70-130
Chloroethane	81	70-130
Freon 11	117	70-130
Ethanol	86	70-130
Freon 113	97	70-130
1,1-Dichloroethene	82	70-130
Acetone	81	70-130
2-Propanol	93	70-130
Carbon Disulfide	84	70-130
3-Chloropropene	85	70-130
Methylene Chloride	85	70-130
Methyl tert-butyl ether	95	70-130
trans-1,2-Dichloroethene	90	70-130
Hexane	88	70-130
1,1-Dichloroethane	96	70-130
2-Butanone (Methyl Ethyl Ketone)	81	70-130
cis-1,2-Dichloroethene	90	70-130
Tetrahydrofuran	86	70-130
Chloroform	96	70-130
1,1,1-Trichloroethane	107	70-130
Cyclohexane	87	70-130
Carbon Tetrachloride	120	70-130
2,2,4-Trimethylpentane	92	70-130
Benzene	90	70-130
1,2-Dichloroethane	110	70-130
Heptane	85	70-130
Trichloroethene	97	70-130
1,2-Dichloropropane	86	70-130
1,4-Dioxane	88	70-130
Bromodichloromethane	103	70-130
cis-1,3-Dichloropropene	94	70-130
4-Methyl-2-pentanone	84	70-130
Toluene	90	70-130
trans-1,3-Dichloropropene	101	70-130
1,1,2-Trichloroethane	99	70-130
Tetrachloroethene	106	70-130
2-Hexanone	84	70-130

Client Sample ID: LCS

Lab ID#: 2301438A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012704	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/27/23 11:05 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	106	70-130
1,2-Dibromoethane (EDB)	96	70-130
Chlorobenzene	96	70-130
Ethyl Benzene	100	70-130
m,p-Xylene	98	70-130
o-Xylene	99	70-130
Styrene	101	70-130
Bromoform	112	70-130
Cumene	102	70-130
1,1,2,2-Tetrachloroethane	93	70-130
Propylbenzene	99	70-130
4-Ethyltoluene	101	70-130
1,3,5-Trimethylbenzene	102	70-130
1,2,4-Trimethylbenzene	110	70-130
1,3-Dichlorobenzene	108	70-130
1,4-Dichlorobenzene	109	70-130
alpha-Chlorotoluene	105	70-130
1,2-Dichlorobenzene	110	70-130
1,2,4-Trichlorobenzene	128	70-130
Hexachlorobutadiene	144 Q	70-130
Butane	72	60-140
Isopentane	82	60-140

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130
1,2-Dichloroethane-d4	120	70-130
4-Bromofluorobenzene	110	70-130

Client Sample ID: LCSD

Lab ID#: 2301438A-08AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012705	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/27/23 11:48 AM

Compound	%Recovery	Method Limits
Freon 12	115	70-130
Freon 114	93	70-130
Chloromethane	98	70-130
Vinyl Chloride	81	70-130
1,3-Butadiene	88	70-130
Bromomethane	84	70-130
Chloroethane	80	70-130
Freon 11	116	70-130
Ethanol	78	70-130
Freon 113	94	70-130
1,1-Dichloroethene	83	70-130
Acetone	80	70-130
2-Propanol	94	70-130
Carbon Disulfide	85	70-130
3-Chloropropene	84	70-130
Methylene Chloride	86	70-130
Methyl tert-butyl ether	96	70-130
trans-1,2-Dichloroethene	88	70-130
Hexane	86	70-130
1,1-Dichloroethane	94	70-130
2-Butanone (Methyl Ethyl Ketone)	81	70-130
cis-1,2-Dichloroethene	90	70-130
Tetrahydrofuran	83	70-130
Chloroform	94	70-130
1,1,1-Trichloroethane	105	70-130
Cyclohexane	84	70-130
Carbon Tetrachloride	119	70-130
2,2,4-Trimethylpentane	90	70-130
Benzene	91	70-130
1,2-Dichloroethane	111	70-130
Heptane	86	70-130
Trichloroethene	98	70-130
1,2-Dichloropropane	87	70-130
1,4-Dioxane	89	70-130
Bromodichloromethane	102	70-130
cis-1,3-Dichloropropene	92	70-130
4-Methyl-2-pentanone	83	70-130
Toluene	89	70-130
trans-1,3-Dichloropropene	100	70-130
1,1,2-Trichloroethane	97	70-130
Tetrachloroethene	107	70-130
2-Hexanone	84	70-130

Client Sample ID: LCSD

Lab ID#: 2301438A-08AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p012705	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/27/23 11:48 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	106	70-130
1,2-Dibromoethane (EDB)	95	70-130
Chlorobenzene	95	70-130
Ethyl Benzene	98	70-130
m,p-Xylene	100	70-130
o-Xylene	97	70-130
Styrene	100	70-130
Bromoform	114	70-130
Cumene	102	70-130
1,1,2,2-Tetrachloroethane	91	70-130
Propylbenzene	98	70-130
4-Ethyltoluene	102	70-130
1,3,5-Trimethylbenzene	102	70-130
1,2,4-Trimethylbenzene	111	70-130
1,3-Dichlorobenzene	106	70-130
1,4-Dichlorobenzene	106	70-130
alpha-Chlorotoluene	105	70-130
1,2-Dichlorobenzene	108	70-130
1,2,4-Trichlorobenzene	128	70-130
Hexachlorobutadiene	144 Q	70-130
Butane	77	60-140
Isopentane	78	60-140

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	95	70-130
1,2-Dichloroethane-d4	114	70-130
4-Bromofluorobenzene	109	70-130

Client Sample ID: LCS

Lab ID#: 2301438A-08B

EPA METHOD TO-15 GC/MS

File Name:	14013003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/30/23 08:37 AM

Compound	%Recovery	Method Limits
Freon 12	116	70-130
Freon 114	99	70-130
Chloromethane	104	70-130
Vinyl Chloride	100	70-130
1,3-Butadiene	91	70-130
Bromomethane	104	70-130
Chloroethane	92	70-130
Freon 11	122	70-130
Ethanol	103	70-130
Freon 113	107	70-130
1,1-Dichloroethene	113	70-130
Acetone	104	70-130
2-Propanol	116	70-130
Carbon Disulfide	97	70-130
3-Chloropropene	94	70-130
Methylene Chloride	124	70-130
Methyl tert-butyl ether	102	70-130
trans-1,2-Dichloroethene	91	70-130
Hexane	100	70-130
1,1-Dichloroethane	106	70-130
2-Butanone (Methyl Ethyl Ketone)	96	70-130
cis-1,2-Dichloroethene	97	70-130
Tetrahydrofuran	102	70-130
Chloroform	107	70-130
1,1,1-Trichloroethane	112	70-130
Cyclohexane	94	70-130
Carbon Tetrachloride	112	70-130
2,2,4-Trimethylpentane	105	70-130
Benzene	103	70-130
1,2-Dichloroethane	129	70-130
Heptane	96	70-130
Trichloroethene	109	70-130
1,2-Dichloropropane	102	70-130
1,4-Dioxane	108	70-130
Bromodichloromethane	107	70-130
cis-1,3-Dichloropropene	100	70-130
4-Methyl-2-pentanone	89	70-130
Toluene	102	70-130
trans-1,3-Dichloropropene	101	70-130
1,1,2-Trichloroethane	102	70-130
Tetrachloroethene	106	70-130
2-Hexanone	100	70-130



Client Sample ID: LCS

Lab ID#: 2301438A-08B

EPA METHOD TO-15 GC/MS

File Name:	14013003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/30/23 08:37 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	108	70-130
1,2-Dibromoethane (EDB)	101	70-130
Chlorobenzene	104	70-130
Ethyl Benzene	101	70-130
m,p-Xylene	100	70-130
o-Xylene	99	70-130
Styrene	99	70-130
Bromoform	106	70-130
Cumene	101	70-130
1,1,2,2-Tetrachloroethane	105	70-130
Propylbenzene	100	70-130
4-Ethyltoluene	107	70-130
1,3,5-Trimethylbenzene	112	70-130
1,2,4-Trimethylbenzene	110	70-130
1,3-Dichlorobenzene	107	70-130
1,4-Dichlorobenzene	107	70-130
alpha-Chlorotoluene	85	70-130
1,2-Dichlorobenzene	110	70-130
1,2,4-Trichlorobenzene	101	70-130
Hexachlorobutadiene	92	70-130
Butane	97	60-140
Isopentane	123	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	119	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: LCSD

Lab ID#: 2301438A-08BB

EPA METHOD TO-15 GC/MS

File Name:	14013004	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/30/23 09:02 AM

Compound	%Recovery	Method Limits
Freon 12	112	70-130
Freon 114	100	70-130
Chloromethane	107	70-130
Vinyl Chloride	99	70-130
1,3-Butadiene	90	70-130
Bromomethane	100	70-130
Chloroethane	90	70-130
Freon 11	118	70-130
Ethanol	113	70-130
Freon 113	106	70-130
1,1-Dichloroethene	110	70-130
Acetone	102	70-130
2-Propanol	115	70-130
Carbon Disulfide	94	70-130
3-Chloropropene	96	70-130
Methylene Chloride	124	70-130
Methyl tert-butyl ether	99	70-130
trans-1,2-Dichloroethene	89	70-130
Hexane	99	70-130
1,1-Dichloroethane	106	70-130
2-Butanone (Methyl Ethyl Ketone)	95	70-130
cis-1,2-Dichloroethene	96	70-130
Tetrahydrofuran	107	70-130
Chloroform	105	70-130
1,1,1-Trichloroethane	107	70-130
Cyclohexane	90	70-130
Carbon Tetrachloride	111	70-130
2,2,4-Trimethylpentane	104	70-130
Benzene	102	70-130
1,2-Dichloroethane	125	70-130
Heptane	96	70-130
Trichloroethene	107	70-130
1,2-Dichloropropane	99	70-130
1,4-Dioxane	104	70-130
Bromodichloromethane	108	70-130
cis-1,3-Dichloropropene	99	70-130
4-Methyl-2-pentanone	86	70-130
Toluene	98	70-130
trans-1,3-Dichloropropene	103	70-130
1,1,2-Trichloroethane	104	70-130
Tetrachloroethene	106	70-130
2-Hexanone	100	70-130

Client Sample ID: LCSD

Lab ID#: 2301438A-08BB

EPA METHOD TO-15 GC/MS

File Name:	14013004	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/30/23 09:02 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	111	70-130
1,2-Dibromoethane (EDB)	103	70-130
Chlorobenzene	105	70-130
Ethyl Benzene	102	70-130
m,p-Xylene	100	70-130
o-Xylene	101	70-130
Styrene	101	70-130
Bromoform	105	70-130
Cumene	104	70-130
1,1,2,2-Tetrachloroethane	108	70-130
Propylbenzene	102	70-130
4-Ethyltoluene	108	70-130
1,3,5-Trimethylbenzene	112	70-130
1,2,4-Trimethylbenzene	116	70-130
1,3-Dichlorobenzene	108	70-130
1,4-Dichlorobenzene	108	70-130
alpha-Chlorotoluene	88	70-130
1,2-Dichlorobenzene	112	70-130
1,2,4-Trichlorobenzene	107	70-130
Hexachlorobutadiene	95	70-130
Butane	94	60-140
Isopentane	118	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	117	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	103	70-130

2/6/2023

Mr. Samuel Fisher

AECOM

100 N. Broadway, 20th Floor

St. Louis MO 63102

Project Name: Roxana Quarterly Soil Vapor

Project #: 60697537 - 4.1.2

Workorder #: 2301438B

Dear Mr. Samuel Fisher

The following report includes the data for the above referenced project for sample(s) received on 1/25/2023 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker

Project Manager

**WORK ORDER #: 2301438B**

Work Order Summary

<b>CLIENT:</b>	Mr. Samuel Fisher AECOM 100 N. Broadway, 20th Floor St. Louis, MO 63102	<b>BILL TO:</b>	Accounts Payable Austin AECOM PO Box 203970 Austin, TX 78720
<b>PHONE:</b>	314-296-1969	<b>P.O. #</b>	150605
<b>FAX:</b>		<b>PROJECT #</b>	60697537 - 4.1.2 Roxana Quarterly Soil
<b>DATE RECEIVED:</b>	01/25/2023	<b>CONTACT:</b>	Vapor Brran Whittaker
<b>DATE COMPLETED:</b>	02/06/2023		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	VMP-15-5-012423	Modified ASTM D-1946	5.0 "Hg	10 psi
02A	VMP-15-21.5-012423	Modified ASTM D-1946	5.0 "Hg	10 psi
03A	VMP-15-25.5-012423	Modified ASTM D-1946	5.5 "Hg	10 psi
04A	VMP-15-29-012423	Modified ASTM D-1946	6.0 "Hg	10 psi
05A	VMP-55-20-012423	Modified ASTM D-1946	5.0 "Hg	10 psi
06A	Lab Blank	Modified ASTM D-1946	NA	NA
06B	Lab Blank	Modified ASTM D-1946	NA	NA
07A	CCV	Modified ASTM D-1946	NA	NA
08A	LCS	Modified ASTM D-1946	NA	NA
08AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 02/06/23

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA NELAP - C935

Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005-017, Effective date: 10/18/2022, Expiration date: 10/17/2023.

Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

*This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.*

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

**LABORATORY NARRATIVE**  
**Modified ASTM D-1946**  
**AECOM**  
**Workorder# 2301438B**

Five 1 Liter Summa Canister samples were received on January 25, 2023. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Since Nitrogen is used to pressurize samples, the reported Nitrogen values are calculated by adding all the sample components and subtracting from 100%.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>ASTM D-1946</i>	<i>ATL Modifications</i>
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a $\geq$ 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit.

**Definition of Data Qualifying Flags**

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit.

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the detection limit.

M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds  
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

**Client Sample ID: VMP-15-5-012423**

**Lab ID#: 2301438B-01A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.20	17
Nitrogen	0.20	80
Carbon Dioxide	0.020	3.1

**Client Sample ID: VMP-15-21.5-012423**

**Lab ID#: 2301438B-02A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.20	3.0
Nitrogen	0.20	82
Carbon Dioxide	0.020	15

**Client Sample ID: VMP-15-25.5-012423**

**Lab ID#: 2301438B-03A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.21	4.2
Nitrogen	0.21	80
Carbon Dioxide	0.021	16

**Client Sample ID: VMP-15-29-012423**

**Lab ID#: 2301438B-04A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.21	4.2
Nitrogen	0.21	80
Methane	0.00021	0.000067 J
Carbon Dioxide	0.021	16

**Client Sample ID: VMP-55-20-012423**

**Lab ID#: 2301438B-05A**



**Summary of Detected Compounds**  
**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

**Client Sample ID: VMP-55-20-012423**

**Lab ID#: 2301438B-05A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.20	1.3
Nitrogen	0.20	71
Methane	0.00020	10
Carbon Dioxide	0.020	17
Ethane	0.0020	0.0038
-----		



Air Toxics

Client Sample ID: VMP-15-5-012423

Lab ID#: 2301438B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11013119	Date of Collection:	1/24/23 8:48:00 AM
Dil. Factor:	2.02	Date of Analysis:	1/31/23 05:23 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.20	17
Nitrogen	0.20	80
Carbon Monoxide	0.020	Not Detected
Methane	0.00020	Not Detected
Carbon Dioxide	0.020	3.1
Ethane	0.0020	Not Detected
Ethene	0.0020	Not Detected
Helium	0.10	Not Detected

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-21.5-012423

Lab ID#: 2301438B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11013120	Date of Collection:	1/24/23 9:04:00 AM
Dil. Factor:	2.02	Date of Analysis:	1/31/23 05:48 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.20	3.0
Nitrogen	0.20	82
Carbon Monoxide	0.020	Not Detected
Methane	0.00020	Not Detected
Carbon Dioxide	0.020	15
Ethane	0.0020	Not Detected
Ethene	0.0020	Not Detected
Helium	0.10	Not Detected

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-25.5-012423

Lab ID#: 2301438B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11013121	Date of Collection:	1/24/23 9:24:00 AM
Dil. Factor:	2.06	Date of Analysis:	1/31/23 06:13 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.21	4.2
Nitrogen	0.21	80
Carbon Monoxide	0.021	Not Detected
Methane	0.00021	Not Detected
Carbon Dioxide	0.021	16
Ethane	0.0021	Not Detected
Ethene	0.0021	Not Detected
Helium	0.10	Not Detected

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-29-012423

Lab ID#: 2301438B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11013122	Date of Collection:	1/24/23 9:44:00 AM
Dil. Factor:	2.10	Date of Analysis:	1/31/23 06:37 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.21	4.2
Nitrogen	0.21	80
Carbon Monoxide	0.021	Not Detected
Methane	0.00021	0.000067 J
Carbon Dioxide	0.021	16
Ethane	0.0021	Not Detected
Ethene	0.0021	Not Detected
Helium	0.10	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-55-20-012423

Lab ID#: 2301438B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11013123	Date of Collection: 1/24/23 10:41:00 AM
Dil. Factor:	2.02	Date of Analysis: 1/31/23 07:01 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.20	1.3
Nitrogen	0.20	71
Carbon Monoxide	0.020	Not Detected
Methane	0.00020	10
Carbon Dioxide	0.020	17
Ethane	0.0020	0.0038
Ethene	0.0020	Not Detected
Helium	0.10	Not Detected

Container Type: 1 Liter Summa Canister

Client Sample ID: Lab Blank

Lab ID#: 2301438B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11013103	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/30/23 10:49 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Nitrogen	0.10	0.050 J
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	0.000050 J
Carbon Dioxide	0.010	Not Detected
Ethane	0.0010	Not Detected
Ethene	0.0010	Not Detected

J = Estimated value.

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2301438B-06B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11013104c	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	1/31/23 06:55 AM

Compound	Rpt. Limit (%)	Amount (%)
Helium	0.050	Not Detected

Container Type: NA - Not Applicable





Air Toxics

Client Sample ID: CCV

Lab ID#: 2301438B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11013101	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/30/23 09:57 PM

Compound	%Recovery
Oxygen	101
Nitrogen	95
Carbon Monoxide	96
Methane	96
Carbon Dioxide	101
-----	
Ethane	94
Ethene	97
Helium	95

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCS

Lab ID#: 2301438B-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11013102	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/30/23 10:22 PM

Compound	%Recovery	Method Limits
Oxygen	101	85-115
Nitrogen	94	85-115
Carbon Monoxide	95	85-115
Methane	96	85-115
Carbon Dioxide	100	85-115
Ethane	94	85-115
Ethene	95	85-115
Helium	110	85-115

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCSD

Lab ID#: 2301438B-08AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11013125	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 1/31/23 08:18 PM

Compound	%Recovery	Method Limits
Oxygen	101	85-115
Nitrogen	94	85-115
Carbon Monoxide	95	85-115
Methane	96	85-115
Carbon Dioxide	101	85-115
Ethane	94	85-115
Ethene	96	85-115
Helium	111	85-115

Container Type: NA - Not Applicable

**Analytical Report**

5/12/2023

Mr. Samuel Fisher

AECOM

100 N. Broadway, 20th Floor

St. Louis MO 63102

Project Name: Roxana Quarterly Soil Vapor

Project #: 60697537-4.2.2

Workorder #: 2304622A

Dear Mr. Samuel Fisher

The following report includes the data for the above referenced project for sample(s) received on 4/28/2023 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker

Project Manager

**WORK ORDER #: 2304622A**

Work Order Summary

<b>CLIENT:</b>	Mr. Samuel Fisher AECOM 100 N. Broadway, 20th Floor St. Louis, MO 63102	<b>BILL TO:</b>	Accounts Payable Austin AECOM PO Box 203970 Austin, TX 78720
<b>PHONE:</b>	314-296-1969	<b>P.O. #</b>	150605
<b>FAX:</b>		<b>PROJECT #</b>	60697537-4.2.2 Roxana Quarterly Soil
<b>DATE RECEIVED:</b>	04/28/2023	<b>CONTACT:</b>	Vapor Brran Whittaker
<b>DATE COMPLETED:</b>	05/12/2023		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	VMP-55-20-042723	TO-15	6 "Hg	10.2 psi
01B	VMP-55-20-042723	TO-15	6 "Hg	10.2 psi
02A	VMP-15-5-042723	TO-15	7.0 "Hg	10.2 psi
03A	VMP-15-21.5-042723	TO-15	7.5 "Hg	10.2 psi
04A	VMP-15-25.5-042723	TO-15	7.5 "Hg	10 psi
05A	VMP-15-29-042723	TO-15	7.5 "Hg	10 psi
06A	Lab Blank	TO-15	NA	NA
06B	Lab Blank	TO-15	NA	NA
06C	Lab Blank	TO-15	NA	NA
07A	CCV	TO-15	NA	NA
07B	CCV	TO-15	NA	NA
07C	CCV	TO-15	NA	NA
08A	LCS	TO-15	NA	NA
08AA	LCSD	TO-15	NA	NA
08B	LCS	TO-15	NA	NA
08BB	LCSD	TO-15	NA	NA
08C	LCS	TO-15	NA	NA
08CC	LCSD	TO-15	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 05/12/23

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA ELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program) CA300005-017  
 Eurofins Environment Testing Northern California, LLC certifies that the test results contained in this report meet all requirements of the 2016 TNI Standard.

*This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.*  
 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

**LABORATORY NARRATIVE**  
**EPA Method TO-15**  
**AECOM**  
**Workorder# 2304622A**

Five 1 Liter Summa Canister samples were received on April 28, 2023. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Dilution was performed on sample VMP-55-20-042723 due to the presence of high level target species.

Due to high-level target compounds, sample VMP-55-20-042723 was analyzed twice. In the "A" fraction, the sample was diluted to bring the highest-level compounds within the calibration range. The "B" fraction is also reported by client request and may be reported with "E" flags indicating the compound exceeds the calibration range. Both runs and associated QC are reported.

High concentrations of VOCs in sample VMP-55-20-042723 required an off-line dilution using a Tedlar bag. Toluene is a common contaminant in Tedlar bags. The vendor provided Tedlar bag certification is for a subset of analytes and the lot indicates Toluene was at 2.0 ppbv which is certified above the laboratory reporting limit of 1.0 ppbv therefore a CN-flag was applied to the associated concentrations.

**Definition of Data Qualifying Flags**

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

### Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: VMP-55-20-042723**

**Lab ID#: 2304622A-01A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	26000	18000 J	50000	34000 J
2-Propanol	11000	5400 J	26000	13000 J
Hexane	2600	7700	9300	27000
Cyclohexane	2600	19000	9100	66000
2,2,4-Trimethylpentane	2600	56000	12000	260000
1,2-Dichloropropane	2600	2000 J	12000	9200 J
Toluene	5300	10000 CN	20000	39000 CN
o-Xylene	2600	650 J	12000	2800 J
Butane	11000	120000	25000	280000
Isopentane	11000	690000	31000	2000000

**Client Sample ID: VMP-55-20-042723**

**Lab ID#: 2304622A-01B**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	6600	11000	12000	21000
Acetone	6600	3400 J	16000	8200 J
2-Propanol	2600	3200	6500	8000
Hexane	660	8400	2300	30000
Cyclohexane	660	20000	2300	70000
2,2,4-Trimethylpentane	660	49000	3100	230000
1,2-Dichloropropane	660	1400	3000	6500
Toluene	1300	7100 CN	5000	27000 CN
Butane	2600	110000	6300	260000
Isopentane	2600	710000 E	7800	2100000 E

**Client Sample ID: VMP-15-5-042723**

**Lab ID#: 2304622A-02A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	0.39 J	5.5	1.9 J
Ethanol	11	27	21	52
Acetone	11	4.7 J	26	11 J



### Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: VMP-15-5-042723**

**Lab ID#: 2304622A-02A**

2-Propanol	4.4	8.0	11	20
cis-1,2-Dichloroethene	1.1	0.39 J	4.4	1.5 J

**Client Sample ID: VMP-15-21.5-042723**

**Lab ID#: 2304622A-03A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	0.24 J	5.6	1.2 J
Ethanol	11	16	21	30
Acetone	11	13	27	31
2-Propanol	4.5	32	11	78
2-Butanone (Methyl Ethyl Ketone)	4.5	1.2 J	13	3.7 J
Butane	4.5	6.1	11	14

**Client Sample ID: VMP-15-25.5-042723**

**Lab ID#: 2304622A-04A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	11	4.3 J	27	10 J
2-Propanol	4.5	7.8	11	19
Chloroform	1.1	0.41 J	5.5	2.0 J
2,2,4-Trimethylpentane	1.1	0.47 J	5.2	2.2 J
Benzene	1.1	0.29 J	3.6	0.94 J

**Client Sample ID: VMP-15-29-042723**

**Lab ID#: 2304622A-05A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Propanol	4.5	8.8	11	22
Hexane	1.1	0.57 J	3.9	2.0 J
Chloroform	1.1	2.4	5.5	12
Cyclohexane	1.1	0.67 J	3.8	2.3 J
2,2,4-Trimethylpentane	1.1	1.3	5.2	6.1
Benzene	1.1	0.42 J	3.6	1.4 J

**Summary of Detected Compounds  
EPA METHOD TO-15 GC/MS FULL SCAN**

**Client Sample ID: VMP-15-29-042723**

**Lab ID#: 2304622A-05A**

Heptane	1.1	1.0 J	4.6	4.1 J
Toluene	2.2	0.92 J	8.4	3.5 J
Ethyl Benzene	1.1	0.34 J	4.9	1.5 J
m,p-Xylene	2.2	1.0 J	9.7	4.4 J
o-Xylene	1.1	1.6	4.9	6.8
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Propylbenzene	1.1	0.41 J	5.5	2.0 J
4-Ethyltoluene	1.1	0.44 J	5.5	2.2 J
1,3,5-Trimethylbenzene	1.1	0.59 J	5.5	2.9 J
Butane	4.5	2.7 J	11	6.5 J
Isopentane	4.5	1.8 J	13	5.2 J
-----				



Air Toxics

Client Sample ID: VMP-55-20-042723

Lab ID#: 2304622A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051107	Date of Collection:	4/27/23 10:34:00 AM
Dil. Factor:	5300	Date of Analysis:	5/11/23 12:21 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	2600	Not Detected	13000	Not Detected
Freon 114	2600	Not Detected	18000	Not Detected
Chloromethane	26000	Not Detected	55000	Not Detected
Vinyl Chloride	2600	Not Detected	6800	Not Detected
1,3-Butadiene	2600	Not Detected	5900	Not Detected
Bromomethane	26000	Not Detected	100000	Not Detected
Chloroethane	11000	Not Detected	28000	Not Detected
Freon 11	2600	Not Detected	15000	Not Detected
Ethanol	26000	18000 J	50000	34000 J
Freon 113	2600	Not Detected	20000	Not Detected
1,1-Dichloroethene	2600	Not Detected	10000	Not Detected
Acetone	26000	Not Detected	63000	Not Detected
2-Propanol	11000	5400 J	26000	13000 J
Carbon Disulfide	11000	Not Detected	33000	Not Detected
3-Chloropropene	11000	Not Detected	33000	Not Detected
Methylene Chloride	26000	Not Detected	92000	Not Detected
Methyl tert-butyl ether	11000	Not Detected	38000	Not Detected
trans-1,2-Dichloroethene	2600	Not Detected	10000	Not Detected
Hexane	2600	7700	9300	27000
1,1-Dichloroethane	2600	Not Detected	11000	Not Detected
2-Butanone (Methyl Ethyl Ketone)	11000	Not Detected	31000	Not Detected
cis-1,2-Dichloroethene	2600	Not Detected	10000	Not Detected
Tetrahydrofuran	2600	Not Detected	7800	Not Detected
Chloroform	2600	Not Detected	13000	Not Detected
1,1,1-Trichloroethane	2600	Not Detected	14000	Not Detected
Cyclohexane	2600	19000	9100	66000
Carbon Tetrachloride	2600	Not Detected	17000	Not Detected
2,2,4-Trimethylpentane	2600	56000	12000	260000
Benzene	2600	Not Detected	8500	Not Detected
1,2-Dichloroethane	2600	Not Detected	11000	Not Detected
Heptane	2600	Not Detected	11000	Not Detected
Trichloroethene	2600	Not Detected	14000	Not Detected
1,2-Dichloropropane	2600	2000 J	12000	9200 J
1,4-Dioxane	11000	Not Detected	38000	Not Detected
Bromodichloromethane	2600	Not Detected	18000	Not Detected
cis-1,3-Dichloropropene	2600	Not Detected	12000	Not Detected
4-Methyl-2-pentanone	2600	Not Detected	11000	Not Detected
Toluene	5300	10000 CN	20000	39000 CN
trans-1,3-Dichloropropene	2600	Not Detected	12000	Not Detected
1,1,2-Trichloroethane	2600	Not Detected	14000	Not Detected
Tetrachloroethene	2600	Not Detected	18000	Not Detected
2-Hexanone	11000	Not Detected	43000	Not Detected



Air Toxics

Client Sample ID: VMP-55-20-042723

Lab ID#: 2304622A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051107	Date of Collection:	4/27/23 10:34:00 AM
Dil. Factor:	5300	Date of Analysis:	5/11/23 12:21 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	2600	Not Detected	22000	Not Detected
1,2-Dibromoethane (EDB)	2600	Not Detected	20000	Not Detected
Chlorobenzene	2600	Not Detected	12000	Not Detected
Ethyl Benzene	2600	Not Detected	12000	Not Detected
m,p-Xylene	5300	Not Detected	23000	Not Detected
o-Xylene	2600	650 J	12000	2800 J
Styrene	2600	Not Detected	11000	Not Detected
Bromoform	2600	Not Detected	27000	Not Detected
Cumene	2600	Not Detected	13000	Not Detected
1,1,2,2-Tetrachloroethane	2600	Not Detected	18000	Not Detected
Propylbenzene	2600	Not Detected	13000	Not Detected
4-Ethyltoluene	2600	Not Detected	13000	Not Detected
1,3,5-Trimethylbenzene	2600	Not Detected	13000	Not Detected
1,2,4-Trimethylbenzene	2600	Not Detected	13000	Not Detected
1,3-Dichlorobenzene	2600	Not Detected	16000	Not Detected
1,4-Dichlorobenzene	2600	Not Detected	16000	Not Detected
alpha-Chlorotoluene	2600	Not Detected	14000	Not Detected
1,2-Dichlorobenzene	2600	Not Detected	16000	Not Detected
1,2,4-Trichlorobenzene	11000	Not Detected	79000	Not Detected
Hexachlorobutadiene	11000	Not Detected	110000	Not Detected
Butane	11000	120000	25000	280000
Isopentane	11000	690000	31000	2000000

J = Estimated value.

CN =See Case Narrative explanation

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: VMP-55-20-042723

Lab ID#: 2304622A-01B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051025	Date of Collection:	4/27/23 10:34:00 AM
Dil. Factor:	1320	Date of Analysis:	5/11/23 01:01 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	660	Not Detected	3300	Not Detected
Freon 114	660	Not Detected	4600	Not Detected
Chloromethane	6600	Not Detected	14000	Not Detected
Vinyl Chloride	660	Not Detected	1700	Not Detected
1,3-Butadiene	660	Not Detected	1500	Not Detected
Bromomethane	6600	Not Detected	26000	Not Detected
Chloroethane	2600	Not Detected	7000	Not Detected
Freon 11	660	Not Detected	3700	Not Detected
Ethanol	6600	11000	12000	21000
Freon 113	660	Not Detected	5000	Not Detected
1,1-Dichloroethene	660	Not Detected	2600	Not Detected
Acetone	6600	3400 J	16000	8200 J
2-Propanol	2600	3200	6500	8000
Carbon Disulfide	2600	Not Detected	8200	Not Detected
3-Chloropropene	2600	Not Detected	8300	Not Detected
Methylene Chloride	6600	Not Detected	23000	Not Detected
Methyl tert-butyl ether	2600	Not Detected	9500	Not Detected
trans-1,2-Dichloroethene	660	Not Detected	2600	Not Detected
Hexane	660	8400	2300	30000
1,1-Dichloroethane	660	Not Detected	2700	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2600	Not Detected	7800	Not Detected
cis-1,2-Dichloroethene	660	Not Detected	2600	Not Detected
Tetrahydrofuran	660	Not Detected	1900	Not Detected
Chloroform	660	Not Detected	3200	Not Detected
1,1,1-Trichloroethane	660	Not Detected	3600	Not Detected
Cyclohexane	660	20000	2300	70000
Carbon Tetrachloride	660	Not Detected	4200	Not Detected
2,2,4-Trimethylpentane	660	49000	3100	230000
Benzene	660	Not Detected	2100	Not Detected
1,2-Dichloroethane	660	Not Detected	2700	Not Detected
Heptane	660	Not Detected	2700	Not Detected
Trichloroethene	660	Not Detected	3500	Not Detected
1,2-Dichloropropane	660	1400	3000	6500
1,4-Dioxane	2600	Not Detected	9500	Not Detected
Bromodichloromethane	660	Not Detected	4400	Not Detected
cis-1,3-Dichloropropene	660	Not Detected	3000	Not Detected
4-Methyl-2-pentanone	660	Not Detected	2700	Not Detected
Toluene	1300	7100 CN	5000	27000 CN
trans-1,3-Dichloropropene	660	Not Detected	3000	Not Detected
1,1,2-Trichloroethane	660	Not Detected	3600	Not Detected
Tetrachloroethene	660	Not Detected	4500	Not Detected
2-Hexanone	2600	Not Detected	11000	Not Detected



Air Toxics

Client Sample ID: VMP-55-20-042723

Lab ID#: 2304622A-01B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051025	Date of Collection:	4/27/23 10:34:00 AM
Dil. Factor:	1320	Date of Analysis:	5/11/23 01:01 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	660	Not Detected	5600	Not Detected
1,2-Dibromoethane (EDB)	660	Not Detected	5100	Not Detected
Chlorobenzene	660	Not Detected	3000	Not Detected
Ethyl Benzene	660	Not Detected	2900	Not Detected
m,p-Xylene	1300	Not Detected	5700	Not Detected
o-Xylene	660	Not Detected	2900	Not Detected
Styrene	660	Not Detected	2800	Not Detected
Bromoform	660	Not Detected	6800	Not Detected
Cumene	660	Not Detected	3200	Not Detected
1,1,2,2-Tetrachloroethane	660	Not Detected	4500	Not Detected
Propylbenzene	660	Not Detected	3200	Not Detected
4-Ethyltoluene	660	Not Detected	3200	Not Detected
1,3,5-Trimethylbenzene	660	Not Detected	3200	Not Detected
1,2,4-Trimethylbenzene	660	Not Detected	3200	Not Detected
1,3-Dichlorobenzene	660	Not Detected	4000	Not Detected
1,4-Dichlorobenzene	660	Not Detected	4000	Not Detected
alpha-Chlorotoluene	660	Not Detected	3400	Not Detected
1,2-Dichlorobenzene	660	Not Detected	4000	Not Detected
1,2,4-Trichlorobenzene	2600	Not Detected	20000	Not Detected
Hexachlorobutadiene	2600	Not Detected	28000	Not Detected
Butane	2600	110000	6300	260000
Isopentane	2600	710000 E	7800	2100000 E

J = Estimated value.

CN =See Case Narrative explanation

E = Exceeds instrument calibration range.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: VMP-15-5-042723

Lab ID#: 2304622A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050422	Date of Collection:	4/27/23 11:33:00 AM
Dil. Factor:	2.21	Date of Analysis:	5/4/23 10:53 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	0.39 J	5.5	1.9 J
Freon 114	1.1	Not Detected	7.7	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,3-Butadiene	1.1	Not Detected	2.4	Not Detected
Bromomethane	11	Not Detected	43	Not Detected
Chloroethane	4.4	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.2	Not Detected
Ethanol	11	27	21	52
Freon 113	1.1	Not Detected	8.5	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Acetone	11	4.7 J	26	11 J
2-Propanol	4.4	8.0	11	20
Carbon Disulfide	4.4	Not Detected	14	Not Detected
3-Chloropropene	4.4	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	38	Not Detected
Methyl tert-butyl ether	4.4	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Hexane	1.1	Not Detected	3.9	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.5	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.4	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	0.39 J	4.4	1.5 J
Tetrahydrofuran	1.1	Not Detected	3.2	Not Detected
Chloroform	1.1	Not Detected	5.4	Not Detected
1,1,1-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Cyclohexane	1.1	Not Detected	3.8	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.0	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.2	Not Detected
Benzene	1.1	Not Detected	3.5	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.5	Not Detected
Heptane	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.1	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.4	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.5	Not Detected
Toluene	2.2	Not Detected	8.3	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Tetrachloroethene	1.1	Not Detected	7.5	Not Detected
2-Hexanone	4.4	Not Detected	18	Not Detected

Client Sample ID: VMP-15-5-042723

Lab ID#: 2304622A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050422	Date of Collection:	4/27/23 11:33:00 AM
Dil. Factor:	2.21	Date of Analysis:	5/4/23 10:53 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.4	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.5	Not Detected
Chlorobenzene	1.1	Not Detected	5.1	Not Detected
Ethyl Benzene	1.1	Not Detected	4.8	Not Detected
m,p-Xylene	2.2	Not Detected	9.6	Not Detected
o-Xylene	1.1	Not Detected	4.8	Not Detected
Styrene	1.1	Not Detected	4.7	Not Detected
Bromoform	1.1	Not Detected	11	Not Detected
Cumene	1.1	Not Detected	5.4	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.6	Not Detected
Propylbenzene	1.1	Not Detected	5.4	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.4	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.7	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
1,2,4-Trichlorobenzene	4.4	Not Detected	33	Not Detected
Hexachlorobutadiene	4.4	Not Detected	47	Not Detected
Butane	4.4	Not Detected	10	Not Detected
Isopentane	4.4	Not Detected	13	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	97	70-130





Air Toxics

Client Sample ID: VMP-15-21.5-042723

Lab ID#: 2304622A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050423	Date of Collection:	4/27/23 11:51:00 AM
Dil. Factor:	2.26	Date of Analysis:	5/4/23 11:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	0.24 J	5.6	1.2 J
Freon 114	1.1	Not Detected	7.9	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,3-Butadiene	1.1	Not Detected	2.5	Not Detected
Bromomethane	11	Not Detected	44	Not Detected
Chloroethane	4.5	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.3	Not Detected
Ethanol	11	16	21	30
Freon 113	1.1	Not Detected	8.7	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Acetone	11	13	27	31
2-Propanol	4.5	32	11	78
Carbon Disulfide	4.5	Not Detected	14	Not Detected
3-Chloropropene	4.5	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	39	Not Detected
Methyl tert-butyl ether	4.5	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Hexane	1.1	Not Detected	4.0	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.5	1.2 J	13	3.7 J
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.3	Not Detected
Chloroform	1.1	Not Detected	5.5	Not Detected
1,1,1-Trichloroethane	1.1	Not Detected	6.2	Not Detected
Cyclohexane	1.1	Not Detected	3.9	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.1	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.3	Not Detected
Benzene	1.1	Not Detected	3.6	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.6	Not Detected
Heptane	1.1	Not Detected	4.6	Not Detected
Trichloroethene	1.1	Not Detected	6.1	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.2	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.6	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.6	Not Detected
Toluene	2.3	Not Detected	8.5	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.2	Not Detected
Tetrachloroethene	1.1	Not Detected	7.7	Not Detected
2-Hexanone	4.5	Not Detected	18	Not Detected



Air Toxics

Client Sample ID: VMP-15-21.5-042723

Lab ID#: 2304622A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050423	Date of Collection:	4/27/23 11:51:00 AM
Dil. Factor:	2.26	Date of Analysis:	5/4/23 11:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.6	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.7	Not Detected
Chlorobenzene	1.1	Not Detected	5.2	Not Detected
Ethyl Benzene	1.1	Not Detected	4.9	Not Detected
m,p-Xylene	2.3	Not Detected	9.8	Not Detected
o-Xylene	1.1	Not Detected	4.9	Not Detected
Styrene	1.1	Not Detected	4.8	Not Detected
Bromoform	1.1	Not Detected	12	Not Detected
Cumene	1.1	Not Detected	5.6	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.8	Not Detected
Propylbenzene	1.1	Not Detected	5.6	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.6	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.6	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.6	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.8	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.8	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.8	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.8	Not Detected
1,2,4-Trichlorobenzene	4.5	Not Detected	34	Not Detected
Hexachlorobutadiene	4.5	Not Detected	48	Not Detected
Butane	4.5	6.1	11	14
Isopentane	4.5	Not Detected	13	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: VMP-15-25.5-042723

Lab ID#: 2304622A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050424	Date of Collection:	4/27/23 12:21:00 PM
Dil. Factor:	2.24	Date of Analysis:	5/4/23 11:47 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	Not Detected	5.5	Not Detected
Freon 114	1.1	Not Detected	7.8	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,3-Butadiene	1.1	Not Detected	2.5	Not Detected
Bromomethane	11	Not Detected	43	Not Detected
Chloroethane	4.5	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.3	Not Detected
Ethanol	11	Not Detected	21	Not Detected
Freon 113	1.1	Not Detected	8.6	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Acetone	11	4.3 J	27	10 J
2-Propanol	4.5	7.8	11	19
Carbon Disulfide	4.5	Not Detected	14	Not Detected
3-Chloropropene	4.5	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	39	Not Detected
Methyl tert-butyl ether	4.5	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Hexane	1.1	Not Detected	3.9	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.5	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.5	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.3	Not Detected
Chloroform	1.1	0.41 J	5.5	2.0 J
1,1,1-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Cyclohexane	1.1	Not Detected	3.8	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.0	Not Detected
2,2,4-Trimethylpentane	1.1	0.47 J	5.2	2.2 J
Benzene	1.1	0.29 J	3.6	0.94 J
1,2-Dichloroethane	1.1	Not Detected	4.5	Not Detected
Heptane	1.1	Not Detected	4.6	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.2	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.5	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.6	Not Detected
Toluene	2.2	Not Detected	8.4	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
2-Hexanone	4.5	Not Detected	18	Not Detected

Client Sample ID: VMP-15-25.5-042723

Lab ID#: 2304622A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050424	Date of Collection:	4/27/23 12:21:00 PM
Dil. Factor:	2.24	Date of Analysis:	5/4/23 11:47 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.5	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.6	Not Detected
Chlorobenzene	1.1	Not Detected	5.2	Not Detected
Ethyl Benzene	1.1	Not Detected	4.9	Not Detected
m,p-Xylene	2.2	Not Detected	9.7	Not Detected
o-Xylene	1.1	Not Detected	4.9	Not Detected
Styrene	1.1	Not Detected	4.8	Not Detected
Bromoform	1.1	Not Detected	12	Not Detected
Cumene	1.1	Not Detected	5.5	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.7	Not Detected
Propylbenzene	1.1	Not Detected	5.5	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.5	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.5	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.5	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.8	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
1,2,4-Trichlorobenzene	4.5	Not Detected	33	Not Detected
Hexachlorobutadiene	4.5	Not Detected	48	Not Detected
Butane	4.5	Not Detected	11	Not Detected
Isopentane	4.5	Not Detected	13	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: VMP-15-29-042723

Lab ID#: 2304622A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050425	Date of Collection:	4/27/23 1:22:00 PM
Dil. Factor:	2.24	Date of Analysis:	5/5/23 12:14 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	Not Detected	5.5	Not Detected
Freon 114	1.1	Not Detected	7.8	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,3-Butadiene	1.1	Not Detected	2.5	Not Detected
Bromomethane	11	Not Detected	43	Not Detected
Chloroethane	4.5	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.3	Not Detected
Ethanol	11	Not Detected	21	Not Detected
Freon 113	1.1	Not Detected	8.6	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Acetone	11	Not Detected	27	Not Detected
2-Propanol	4.5	8.8	11	22
Carbon Disulfide	4.5	Not Detected	14	Not Detected
3-Chloropropene	4.5	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	39	Not Detected
Methyl tert-butyl ether	4.5	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Hexane	1.1	0.57 J	3.9	2.0 J
1,1-Dichloroethane	1.1	Not Detected	4.5	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.5	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.3	Not Detected
Chloroform	1.1	2.4	5.5	12
1,1,1-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Cyclohexane	1.1	0.67 J	3.8	2.3 J
Carbon Tetrachloride	1.1	Not Detected	7.0	Not Detected
2,2,4-Trimethylpentane	1.1	1.3	5.2	6.1
Benzene	1.1	0.42 J	3.6	1.4 J
1,2-Dichloroethane	1.1	Not Detected	4.5	Not Detected
Heptane	1.1	1.0 J	4.6	4.1 J
Trichloroethene	1.1	Not Detected	6.0	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.2	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.5	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.6	Not Detected
Toluene	2.2	0.92 J	8.4	3.5 J
trans-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
2-Hexanone	4.5	Not Detected	18	Not Detected

Client Sample ID: VMP-15-29-042723

Lab ID#: 2304622A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050425	Date of Collection:	4/27/23 1:22:00 PM
Dil. Factor:	2.24	Date of Analysis:	5/5/23 12:14 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.5	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.6	Not Detected
Chlorobenzene	1.1	Not Detected	5.2	Not Detected
Ethyl Benzene	1.1	0.34 J	4.9	1.5 J
m,p-Xylene	2.2	1.0 J	9.7	4.4 J
o-Xylene	1.1	1.6	4.9	6.8
Styrene	1.1	Not Detected	4.8	Not Detected
Bromoform	1.1	Not Detected	12	Not Detected
Cumene	1.1	Not Detected	5.5	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.7	Not Detected
Propylbenzene	1.1	0.41 J	5.5	2.0 J
4-Ethyltoluene	1.1	0.44 J	5.5	2.2 J
1,3,5-Trimethylbenzene	1.1	0.59 J	5.5	2.9 J
1,2,4-Trimethylbenzene	1.1	Not Detected	5.5	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.8	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
1,2,4-Trichlorobenzene	4.5	Not Detected	33	Not Detected
Hexachlorobutadiene	4.5	Not Detected	48	Not Detected
Butane	4.5	2.7 J	11	6.5 J
Isopentane	4.5	1.8 J	13	5.2 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2304622A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050406e	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	5/4/23 11:13 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	5.0	Not Detected	9.4	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	1.0	Not Detected	3.8	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

Client Sample ID: Lab Blank

Lab ID#: 2304622A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050406e	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	5/4/23 11:13 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	1.0	Not Detected	4.3	Not Detected
o-Xylene	0.50	0.096 J	2.2	0.42 J
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	0.26 J	2.4	1.2 J
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	0.22 J	2.4	1.1 J
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Butane	2.0	Not Detected	4.8	Not Detected
Isopentane	2.0	Not Detected	5.9	Not Detected

J = Estimated value.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	96	70-130





Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2304622A-06B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051006c	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	5/10/23 11:00 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	5.0	Not Detected	9.4	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	0.11 J	2.7	0.59 J
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	1.0	Not Detected	3.8	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

Client Sample ID: Lab Blank

Lab ID#: 2304622A-06B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051006c	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/10/23 11:00 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	1.0	Not Detected	4.3	Not Detected
o-Xylene	0.50	0.11 J	2.2	0.46 J
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	0.18 J	2.4	0.89 J
1,2,4-Trimethylbenzene	0.50	0.18 J	2.4	0.88 J
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Butane	2.0	Not Detected	4.8	Not Detected
Isopentane	2.0	Not Detected	5.9	Not Detected

J = Estimated value.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	93	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2304622A-06C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051106h	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	5/11/23 11:22 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	5.0	Not Detected	9.4	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	1.0	Not Detected	3.8	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

Client Sample ID: Lab Blank

Lab ID#: 2304622A-06C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051106h	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/11/23 11:22 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	1.0	Not Detected	4.3	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	0.34 J	2.4	1.7 J
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Butane	2.0	Not Detected	4.8	Not Detected
Isopentane	2.0	Not Detected	5.9	Not Detected

J = Estimated value.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	95	70-130

Client Sample ID: CCV

Lab ID#: 2304622A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050402	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/4/23 09:14 AM

Compound	%Recovery
Freon 12	93
Freon 114	94
Chloromethane	86
Vinyl Chloride	100
1,3-Butadiene	96
Bromomethane	95
Chloroethane	93
Freon 11	92
Ethanol	95
Freon 113	94
1,1-Dichloroethene	101
Acetone	93
2-Propanol	97
Carbon Disulfide	95
3-Chloropropene	99
Methylene Chloride	97
Methyl tert-butyl ether	98
trans-1,2-Dichloroethene	101
Hexane	100
1,1-Dichloroethane	96
2-Butanone (Methyl Ethyl Ketone)	98
cis-1,2-Dichloroethene	99
Tetrahydrofuran	97
Chloroform	94
1,1,1-Trichloroethane	94
Cyclohexane	99
Carbon Tetrachloride	94
2,2,4-Trimethylpentane	102
Benzene	98
1,2-Dichloroethane	94
Heptane	102
Trichloroethene	91
1,2-Dichloropropane	96
1,4-Dioxane	99
Bromodichloromethane	94
cis-1,3-Dichloropropene	99
4-Methyl-2-pentanone	101
Toluene	96
trans-1,3-Dichloropropene	101
1,1,2-Trichloroethane	94
Tetrachloroethene	90
2-Hexanone	101

Client Sample ID: CCV

Lab ID#: 2304622A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050402	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/4/23 09:14 AM

Compound	%Recovery
Dibromochloromethane	96
1,2-Dibromoethane (EDB)	98
Chlorobenzene	98
Ethyl Benzene	100
m,p-Xylene	100
o-Xylene	100
Styrene	100
Bromoform	100
Cumene	100
1,1,2,2-Tetrachloroethane	97
Propylbenzene	98
4-Ethyltoluene	97
1,3,5-Trimethylbenzene	100
1,2,4-Trimethylbenzene	100
1,3-Dichlorobenzene	95
1,4-Dichlorobenzene	96
alpha-Chlorotoluene	105
1,2-Dichlorobenzene	97
1,2,4-Trichlorobenzene	97
Hexachlorobutadiene	98
Butane	91
Isopentane	96

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: CCV

Lab ID#: 2304622A-07B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051002	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/10/23 08:48 AM

Compound	%Recovery
Freon 12	96
Freon 114	97
Chloromethane	77
Vinyl Chloride	97
1,3-Butadiene	95
Bromomethane	95
Chloroethane	96
Freon 11	94
Ethanol	92
Freon 113	97
1,1-Dichloroethene	105
Acetone	98
2-Propanol	98
Carbon Disulfide	97
3-Chloropropene	100
Methylene Chloride	97
Methyl tert-butyl ether	98
trans-1,2-Dichloroethene	102
Hexane	97
1,1-Dichloroethane	97
2-Butanone (Methyl Ethyl Ketone)	99
cis-1,2-Dichloroethene	101
Tetrahydrofuran	95
Chloroform	96
1,1,1-Trichloroethane	96
Cyclohexane	98
Carbon Tetrachloride	95
2,2,4-Trimethylpentane	87
Benzene	98
1,2-Dichloroethane	95
Heptane	98
Trichloroethene	92
1,2-Dichloropropane	95
1,4-Dioxane	100
Bromodichloromethane	94
cis-1,3-Dichloropropene	99
4-Methyl-2-pentanone	98
Toluene	96
trans-1,3-Dichloropropene	104
1,1,2-Trichloroethane	97
Tetrachloroethene	92
2-Hexanone	101

Client Sample ID: CCV

Lab ID#: 2304622A-07B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051002	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/10/23 08:48 AM

Compound	%Recovery
Dibromochloromethane	98
1,2-Dibromoethane (EDB)	99
Chlorobenzene	99
Ethyl Benzene	102
m,p-Xylene	100
o-Xylene	102
Styrene	102
Bromoform	102
Cumene	100
1,1,2,2-Tetrachloroethane	98
Propylbenzene	99
4-Ethyltoluene	99
1,3,5-Trimethylbenzene	99
1,2,4-Trimethylbenzene	100
1,3-Dichlorobenzene	97
1,4-Dichlorobenzene	99
alpha-Chlorotoluene	106
1,2-Dichlorobenzene	99
1,2,4-Trichlorobenzene	94
Hexachlorobutadiene	94
Butane	92
Isopentane	96

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	100	70-130



Client Sample ID: CCV

Lab ID#: 2304622A-07C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051102	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/11/23 09:02 AM

Compound	%Recovery
Freon 12	97
Freon 114	96
Chloromethane	79
Vinyl Chloride	97
1,3-Butadiene	93
Bromomethane	98
Chloroethane	95
Freon 11	96
Ethanol	98
Freon 113	97
1,1-Dichloroethene	104
Acetone	99
2-Propanol	98
Carbon Disulfide	98
3-Chloropropene	99
Methylene Chloride	99
Methyl tert-butyl ether	98
trans-1,2-Dichloroethene	103
Hexane	98
1,1-Dichloroethane	98
2-Butanone (Methyl Ethyl Ketone)	97
cis-1,2-Dichloroethene	101
Tetrahydrofuran	96
Chloroform	96
1,1,1-Trichloroethane	94
Cyclohexane	98
Carbon Tetrachloride	95
2,2,4-Trimethylpentane	89
Benzene	98
1,2-Dichloroethane	95
Heptane	98
Trichloroethene	92
1,2-Dichloropropane	96
1,4-Dioxane	99
Bromodichloromethane	94
cis-1,3-Dichloropropene	99
4-Methyl-2-pentanone	99
Toluene	96
trans-1,3-Dichloropropene	102
1,1,2-Trichloroethane	98
Tetrachloroethene	91
2-Hexanone	101

Client Sample ID: CCV

Lab ID#: 2304622A-07C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051102	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/11/23 09:02 AM

Compound	%Recovery
Dibromochloromethane	97
1,2-Dibromoethane (EDB)	98
Chlorobenzene	99
Ethyl Benzene	102
m,p-Xylene	98
o-Xylene	101
Styrene	101
Bromoform	102
Cumene	100
1,1,2,2-Tetrachloroethane	98
Propylbenzene	99
4-Ethyltoluene	94
1,3,5-Trimethylbenzene	104
1,2,4-Trimethylbenzene	100
1,3-Dichlorobenzene	98
1,4-Dichlorobenzene	99
alpha-Chlorotoluene	106
1,2-Dichlorobenzene	99
1,2,4-Trichlorobenzene	96
Hexachlorobutadiene	98
Butane	88
Isopentane	96

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	101	70-130

Client Sample ID: LCS

Lab ID#: 2304622A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050403	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/4/23 09:38 AM

Compound	%Recovery	Method Limits
Freon 12	92	70-130
Freon 114	93	70-130
Chloromethane	95	70-130
Vinyl Chloride	99	70-130
1,3-Butadiene	96	70-130
Bromomethane	89	70-130
Chloroethane	92	70-130
Freon 11	90	70-130
Ethanol	113	70-130
Freon 113	91	70-130
1,1-Dichloroethene	97	70-130
Acetone	97	70-130
2-Propanol	98	70-130
Carbon Disulfide	96	70-130
3-Chloropropene	96	70-130
Methylene Chloride	92	70-130
Methyl tert-butyl ether	95	70-130
trans-1,2-Dichloroethene	98	70-130
Hexane	99	70-130
1,1-Dichloroethane	95	70-130
2-Butanone (Methyl Ethyl Ketone)	96	70-130
cis-1,2-Dichloroethene	98	70-130
Tetrahydrofuran	102	70-130
Chloroform	91	70-130
1,1,1-Trichloroethane	91	70-130
Cyclohexane	98	70-130
Carbon Tetrachloride	92	70-130
2,2,4-Trimethylpentane	101	70-130
Benzene	99	70-130
1,2-Dichloroethane	94	70-130
Heptane	102	70-130
Trichloroethene	92	70-130
1,2-Dichloropropane	96	70-130
1,4-Dioxane	98	70-130
Bromodichloromethane	93	70-130
cis-1,3-Dichloropropene	100	70-130
4-Methyl-2-pentanone	100	70-130
Toluene	95	70-130
trans-1,3-Dichloropropene	103	70-130
1,1,2-Trichloroethane	97	70-130
Tetrachloroethene	89	70-130
2-Hexanone	101	70-130

Client Sample ID: LCS

Lab ID#: 2304622A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050403	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/4/23 09:38 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	95	70-130
1,2-Dibromoethane (EDB)	99	70-130
Chlorobenzene	100	70-130
Ethyl Benzene	104	70-130
m,p-Xylene	99	70-130
o-Xylene	103	70-130
Styrene	102	70-130
Bromoform	99	70-130
Cumene	101	70-130
1,1,2,2-Tetrachloroethane	99	70-130
Propylbenzene	99	70-130
4-Ethyltoluene	97	70-130
1,3,5-Trimethylbenzene	100	70-130
1,2,4-Trimethylbenzene	101	70-130
1,3-Dichlorobenzene	96	70-130
1,4-Dichlorobenzene	97	70-130
alpha-Chlorotoluene	106	70-130
1,2-Dichlorobenzene	97	70-130
1,2,4-Trichlorobenzene	97	70-130
Hexachlorobutadiene	97	70-130
Butane	96	70-130
Isopentane	94	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: LCSD

Lab ID#: 2304622A-08AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050404	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/4/23 10:02 AM

Compound	%Recovery	Method Limits
Freon 12	90	70-130
Freon 114	94	70-130
Chloromethane	91	70-130
Vinyl Chloride	98	70-130
1,3-Butadiene	98	70-130
Bromomethane	88	70-130
Chloroethane	93	70-130
Freon 11	89	70-130
Ethanol	113	70-130
Freon 113	91	70-130
1,1-Dichloroethene	96	70-130
Acetone	98	70-130
2-Propanol	99	70-130
Carbon Disulfide	97	70-130
3-Chloropropene	98	70-130
Methylene Chloride	92	70-130
Methyl tert-butyl ether	96	70-130
trans-1,2-Dichloroethene	99	70-130
Hexane	98	70-130
1,1-Dichloroethane	95	70-130
2-Butanone (Methyl Ethyl Ketone)	98	70-130
cis-1,2-Dichloroethene	98	70-130
Tetrahydrofuran	105	70-130
Chloroform	90	70-130
1,1,1-Trichloroethane	90	70-130
Cyclohexane	100	70-130
Carbon Tetrachloride	91	70-130
2,2,4-Trimethylpentane	101	70-130
Benzene	98	70-130
1,2-Dichloroethane	93	70-130
Heptane	102	70-130
Trichloroethene	91	70-130
1,2-Dichloropropane	94	70-130
1,4-Dioxane	98	70-130
Bromodichloromethane	92	70-130
cis-1,3-Dichloropropene	99	70-130
4-Methyl-2-pentanone	99	70-130
Toluene	95	70-130
trans-1,3-Dichloropropene	101	70-130
1,1,2-Trichloroethane	96	70-130
Tetrachloroethene	89	70-130
2-Hexanone	101	70-130

Client Sample ID: LCSD

Lab ID#: 2304622A-08AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a050404	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/4/23 10:02 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	94	70-130
1,2-Dibromoethane (EDB)	97	70-130
Chlorobenzene	99	70-130
Ethyl Benzene	102	70-130
m,p-Xylene	98	70-130
o-Xylene	101	70-130
Styrene	100	70-130
Bromoform	98	70-130
Cumene	101	70-130
1,1,2,2-Tetrachloroethane	97	70-130
Propylbenzene	98	70-130
4-Ethyltoluene	94	70-130
1,3,5-Trimethylbenzene	100	70-130
1,2,4-Trimethylbenzene	101	70-130
1,3-Dichlorobenzene	96	70-130
1,4-Dichlorobenzene	96	70-130
alpha-Chlorotoluene	105	70-130
1,2-Dichlorobenzene	96	70-130
1,2,4-Trichlorobenzene	100	70-130
Hexachlorobutadiene	99	70-130
Butane	94	70-130
Isopentane	95	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: LCS

Lab ID#: 2304622A-08B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/10/23 09:12 AM

Compound	%Recovery	Method Limits
Freon 12	93	70-130
Freon 114	98	70-130
Chloromethane	100	70-130
Vinyl Chloride	101	70-130
1,3-Butadiene	97	70-130
Bromomethane	92	70-130
Chloroethane	97	70-130
Freon 11	94	70-130
Ethanol	118	70-130
Freon 113	94	70-130
1,1-Dichloroethene	99	70-130
Acetone	100	70-130
2-Propanol	101	70-130
Carbon Disulfide	100	70-130
3-Chloropropene	100	70-130
Methylene Chloride	95	70-130
Methyl tert-butyl ether	98	70-130
trans-1,2-Dichloroethene	102	70-130
Hexane	97	70-130
1,1-Dichloroethane	97	70-130
2-Butanone (Methyl Ethyl Ketone)	100	70-130
cis-1,2-Dichloroethene	100	70-130
Tetrahydrofuran	104	70-130
Chloroform	93	70-130
1,1,1-Trichloroethane	93	70-130
Cyclohexane	100	70-130
Carbon Tetrachloride	94	70-130
2,2,4-Trimethylpentane	91	70-130
Benzene	100	70-130
1,2-Dichloroethane	96	70-130
Heptane	100	70-130
Trichloroethene	93	70-130
1,2-Dichloropropane	95	70-130
1,4-Dioxane	102	70-130
Bromodichloromethane	94	70-130
cis-1,3-Dichloropropene	100	70-130
4-Methyl-2-pentanone	100	70-130
Toluene	96	70-130
trans-1,3-Dichloropropene	103	70-130
1,1,2-Trichloroethane	96	70-130
Tetrachloroethene	91	70-130
2-Hexanone	102	70-130

Client Sample ID: LCS

Lab ID#: 2304622A-08B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/10/23 09:12 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	96	70-130
1,2-Dibromoethane (EDB)	100	70-130
Chlorobenzene	100	70-130
Ethyl Benzene	104	70-130
m,p-Xylene	100	70-130
o-Xylene	103	70-130
Styrene	102	70-130
Bromoform	101	70-130
Cumene	101	70-130
1,1,2,2-Tetrachloroethane	99	70-130
Propylbenzene	99	70-130
4-Ethyltoluene	92	70-130
1,3,5-Trimethylbenzene	104	70-130
1,2,4-Trimethylbenzene	102	70-130
1,3-Dichlorobenzene	97	70-130
1,4-Dichlorobenzene	98	70-130
alpha-Chlorotoluene	107	70-130
1,2-Dichlorobenzene	99	70-130
1,2,4-Trichlorobenzene	99	70-130
Hexachlorobutadiene	98	70-130
Butane	101	70-130
Isopentane	98	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	99	70-130



Client Sample ID: LCSD

Lab ID#: 2304622A-08BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051004	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/10/23 09:36 AM

Compound	%Recovery	Method Limits
Freon 12	91	70-130
Freon 114	95	70-130
Chloromethane	96	70-130
Vinyl Chloride	99	70-130
1,3-Butadiene	95	70-130
Bromomethane	88	70-130
Chloroethane	95	70-130
Freon 11	91	70-130
Ethanol	116	70-130
Freon 113	93	70-130
1,1-Dichloroethene	98	70-130
Acetone	97	70-130
2-Propanol	100	70-130
Carbon Disulfide	99	70-130
3-Chloropropene	99	70-130
Methylene Chloride	93	70-130
Methyl tert-butyl ether	96	70-130
trans-1,2-Dichloroethene	100	70-130
Hexane	97	70-130
1,1-Dichloroethane	96	70-130
2-Butanone (Methyl Ethyl Ketone)	99	70-130
cis-1,2-Dichloroethene	98	70-130
Tetrahydrofuran	102	70-130
Chloroform	92	70-130
1,1,1-Trichloroethane	92	70-130
Cyclohexane	99	70-130
Carbon Tetrachloride	92	70-130
2,2,4-Trimethylpentane	91	70-130
Benzene	98	70-130
1,2-Dichloroethane	93	70-130
Heptane	101	70-130
Trichloroethene	92	70-130
1,2-Dichloropropane	94	70-130
1,4-Dioxane	102	70-130
Bromodichloromethane	92	70-130
cis-1,3-Dichloropropene	99	70-130
4-Methyl-2-pentanone	98	70-130
Toluene	94	70-130
trans-1,3-Dichloropropene	103	70-130
1,1,2-Trichloroethane	98	70-130
Tetrachloroethene	91	70-130
2-Hexanone	101	70-130

Client Sample ID: LCSD

Lab ID#: 2304622A-08BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051004	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/10/23 09:36 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	95	70-130
1,2-Dibromoethane (EDB)	98	70-130
Chlorobenzene	100	70-130
Ethyl Benzene	103	70-130
m,p-Xylene	100	70-130
o-Xylene	103	70-130
Styrene	102	70-130
Bromoform	100	70-130
Cumene	100	70-130
1,1,2,2-Tetrachloroethane	98	70-130
Propylbenzene	99	70-130
4-Ethyltoluene	97	70-130
1,3,5-Trimethylbenzene	99	70-130
1,2,4-Trimethylbenzene	102	70-130
1,3-Dichlorobenzene	96	70-130
1,4-Dichlorobenzene	97	70-130
alpha-Chlorotoluene	106	70-130
1,2-Dichlorobenzene	98	70-130
1,2,4-Trichlorobenzene	100	70-130
Hexachlorobutadiene	100	70-130
Butane	96	70-130
Isopentane	95	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	98	70-130

Client Sample ID: LCS

Lab ID#: 2304622A-08C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051103	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/11/23 09:26 AM

Compound	%Recovery	Method Limits
Freon 12	92	70-130
Freon 114	95	70-130
Chloromethane	82	70-130
Vinyl Chloride	95	70-130
1,3-Butadiene	92	70-130
Bromomethane	88	70-130
Chloroethane	96	70-130
Freon 11	90	70-130
Ethanol	113	70-130
Freon 113	92	70-130
1,1-Dichloroethene	97	70-130
Acetone	97	70-130
2-Propanol	99	70-130
Carbon Disulfide	97	70-130
3-Chloropropene	97	70-130
Methylene Chloride	92	70-130
Methyl tert-butyl ether	95	70-130
trans-1,2-Dichloroethene	98	70-130
Hexane	95	70-130
1,1-Dichloroethane	95	70-130
2-Butanone (Methyl Ethyl Ketone)	96	70-130
cis-1,2-Dichloroethene	96	70-130
Tetrahydrofuran	100	70-130
Chloroform	90	70-130
1,1,1-Trichloroethane	92	70-130
Cyclohexane	97	70-130
Carbon Tetrachloride	90	70-130
2,2,4-Trimethylpentane	87	70-130
Benzene	99	70-130
1,2-Dichloroethane	94	70-130
Heptane	98	70-130
Trichloroethene	92	70-130
1,2-Dichloropropane	94	70-130
1,4-Dioxane	101	70-130
Bromodichloromethane	93	70-130
cis-1,3-Dichloropropene	98	70-130
4-Methyl-2-pentanone	98	70-130
Toluene	94	70-130
trans-1,3-Dichloropropene	103	70-130
1,1,2-Trichloroethane	97	70-130
Tetrachloroethene	91	70-130
2-Hexanone	100	70-130

Client Sample ID: LCS

Lab ID#: 2304622A-08C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051103	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/11/23 09:26 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	95	70-130
1,2-Dibromoethane (EDB)	98	70-130
Chlorobenzene	99	70-130
Ethyl Benzene	104	70-130
m,p-Xylene	99	70-130
o-Xylene	102	70-130
Styrene	101	70-130
Bromoform	99	70-130
Cumene	100	70-130
1,1,2,2-Tetrachloroethane	99	70-130
Propylbenzene	99	70-130
4-Ethyltoluene	91	70-130
1,3,5-Trimethylbenzene	104	70-130
1,2,4-Trimethylbenzene	101	70-130
1,3-Dichlorobenzene	97	70-130
1,4-Dichlorobenzene	98	70-130
alpha-Chlorotoluene	106	70-130
1,2-Dichlorobenzene	98	70-130
1,2,4-Trichlorobenzene	101	70-130
Hexachlorobutadiene	100	70-130
Butane	90	70-130
Isopentane	94	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	101	70-130

Client Sample ID: LCSD

Lab ID#: 2304622A-08CC

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051104	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/11/23 09:50 AM

Compound	%Recovery	Method Limits
Freon 12	92	70-130
Freon 114	96	70-130
Chloromethane	86	70-130
Vinyl Chloride	97	70-130
1,3-Butadiene	93	70-130
Bromomethane	88	70-130
Chloroethane	96	70-130
Freon 11	92	70-130
Ethanol	115	70-130
Freon 113	92	70-130
1,1-Dichloroethene	98	70-130
Acetone	100	70-130
2-Propanol	101	70-130
Carbon Disulfide	98	70-130
3-Chloropropene	99	70-130
Methylene Chloride	93	70-130
Methyl tert-butyl ether	95	70-130
trans-1,2-Dichloroethene	100	70-130
Hexane	96	70-130
1,1-Dichloroethane	96	70-130
2-Butanone (Methyl Ethyl Ketone)	98	70-130
cis-1,2-Dichloroethene	98	70-130
Tetrahydrofuran	102	70-130
Chloroform	92	70-130
1,1,1-Trichloroethane	92	70-130
Cyclohexane	98	70-130
Carbon Tetrachloride	92	70-130
2,2,4-Trimethylpentane	92	70-130
Benzene	97	70-130
1,2-Dichloroethane	92	70-130
Heptane	98	70-130
Trichloroethene	91	70-130
1,2-Dichloropropane	94	70-130
1,4-Dioxane	99	70-130
Bromodichloromethane	91	70-130
cis-1,3-Dichloropropene	98	70-130
4-Methyl-2-pentanone	97	70-130
Toluene	93	70-130
trans-1,3-Dichloropropene	103	70-130
1,1,2-Trichloroethane	97	70-130
Tetrachloroethene	91	70-130
2-Hexanone	100	70-130

Client Sample ID: LCSD

Lab ID#: 2304622A-08CC

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a051104	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/11/23 09:50 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	95	70-130
1,2-Dibromoethane (EDB)	98	70-130
Chlorobenzene	99	70-130
Ethyl Benzene	103	70-130
m,p-Xylene	98	70-130
o-Xylene	101	70-130
Styrene	101	70-130
Bromoform	99	70-130
Cumene	100	70-130
1,1,2,2-Tetrachloroethane	98	70-130
Propylbenzene	98	70-130
4-Ethyltoluene	95	70-130
1,3,5-Trimethylbenzene	99	70-130
1,2,4-Trimethylbenzene	101	70-130
1,3-Dichlorobenzene	96	70-130
1,4-Dichlorobenzene	97	70-130
alpha-Chlorotoluene	105	70-130
1,2-Dichlorobenzene	98	70-130
1,2,4-Trichlorobenzene	101	70-130
Hexachlorobutadiene	100	70-130
Butane	96	70-130
Isopentane	95	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	99	70-130

**Analytical Report**

5/11/2023

Mr. Samuel Fisher

AECOM

100 N. Broadway, 20th Floor

St. Louis MO 63102

Project Name: Roxana Quarterly Soil Vapor

Project #: 60697537-4.2.2

Workorder #: 2304622B

Dear Mr. Samuel Fisher

The following report includes the data for the above referenced project for sample(s) received on 4/28/2023 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker

Project Manager

**WORK ORDER #: 2304622B**

Work Order Summary

<b>CLIENT:</b>	Mr. Samuel Fisher AECOM 100 N. Broadway, 20th Floor St. Louis, MO 63102	<b>BILL TO:</b>	Accounts Payable Austin AECOM PO Box 203970 Austin, TX 78720
<b>PHONE:</b>	314-296-1969	<b>P.O. #</b>	150605
<b>FAX:</b>		<b>PROJECT #</b>	60697537-4.2.2 Roxana Quarterly Soil
<b>DATE RECEIVED:</b>	04/28/2023	<b>CONTACT:</b>	Vapor Brran Whittaker
<b>DATE COMPLETED:</b>	05/11/2023		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	VMP-55-20-042723	Modified ASTM D-1946	6 "Hg	10.2 psi
02A	VMP-15-5-042723	Modified ASTM D-1946	7.0 "Hg	10.2 psi
03A	VMP-15-21.5-042723	Modified ASTM D-1946	7.5 "Hg	10.2 psi
04A	VMP-15-25.5-042723	Modified ASTM D-1946	7.5 "Hg	10 psi
05A	VMP-15-29-042723	Modified ASTM D-1946	7.5 "Hg	10 psi
06A	Lab Blank	Modified ASTM D-1946	NA	NA
06B	Lab Blank	Modified ASTM D-1946	NA	NA
07A	CCV	Modified ASTM D-1946	NA	NA
08A	LCS	Modified ASTM D-1946	NA	NA
08AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 05/11/23

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA ELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program) CA300005-017  
 Eurofins Environment Testing Northern California, LLC certifies that the test results contained in this report meet all requirements of the 2016 TNI Standard.

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 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279



**LABORATORY NARRATIVE**  
**Modified ASTM D-1946**  
**AECOM**  
**Workorder# 2304622B**

Five 1 Liter Summa Canister samples were received on April 28, 2023. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Since Nitrogen is used to pressurize samples, the reported Nitrogen values are calculated by adding all the sample components and subtracting from 100%.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>ASTM D-1946</i>	<i>ATL Modifications</i>
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a $\geq 95\%$ accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit.

**Definition of Data Qualifying Flags**

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit.

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the detection limit.

M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds  
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

**Client Sample ID: VMP-55-20-042723**

**Lab ID#: 2304622B-01A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.21	1.3
Nitrogen	0.21	69
Methane	0.00021	14
Carbon Dioxide	0.021	16
Ethane	0.0021	0.0073
Helium	0.11	0.0078 J

**Client Sample ID: VMP-15-5-042723**

**Lab ID#: 2304622B-02A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.22	15
Nitrogen	0.22	81
Carbon Dioxide	0.022	3.9
Helium	0.11	0.010 J

**Client Sample ID: VMP-15-21.5-042723**

**Lab ID#: 2304622B-03A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.23	3.3
Nitrogen	0.23	84
Carbon Dioxide	0.023	13

**Client Sample ID: VMP-15-25.5-042723**

**Lab ID#: 2304622B-04A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.22	1.5
Nitrogen	0.22	82
Methane	0.00022	0.0019
Carbon Dioxide	0.022	17

**Summary of Detected Compounds**  
**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

**Client Sample ID: VMP-15-29-042723**

**Lab ID#: 2304622B-05A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.22	1.8
Nitrogen	0.22	81
Methane	0.00022	0.00020 J
Carbon Dioxide	0.022	17



Air Toxics

Client Sample ID: VMP-55-20-042723

Lab ID#: 2304622B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11050521	Date of Collection: 4/27/23 10:34:00 AM
Dil. Factor:	2.12	Date of Analysis: 5/5/23 10:10 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.21	1.3
Nitrogen	0.21	69
Carbon Monoxide	0.021	Not Detected
Methane	0.00021	14
Carbon Dioxide	0.021	16
Ethane	0.0021	0.0073
Ethene	0.0021	Not Detected
Helium	0.11	0.0078 J

J = Estimated value.

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-5-042723

Lab ID#: 2304622B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11050522	Date of Collection: 4/27/23 11:33:00 AM
Dil. Factor:	2.21	Date of Analysis: 5/5/23 10:42 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	15
Nitrogen	0.22	81
Carbon Monoxide	0.022	Not Detected
Methane	0.00022	Not Detected
Carbon Dioxide	0.022	3.9
Ethane	0.0022	Not Detected
Ethene	0.0022	Not Detected
Helium	0.11	0.010 J

J = Estimated value.

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-21.5-042723

Lab ID#: 2304622B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11050523	Date of Collection: 4/27/23 11:51:00 AM
Dil. Factor:	2.26	Date of Analysis: 5/5/23 11:07 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	3.3
Nitrogen	0.23	84
Carbon Monoxide	0.023	Not Detected
Methane	0.00023	Not Detected
Carbon Dioxide	0.023	13
Ethane	0.0023	Not Detected
Ethene	0.0023	Not Detected
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-25.5-042723

Lab ID#: 2304622B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11050524	Date of Collection:	4/27/23 12:21:00 PM
Dil. Factor:	2.24	Date of Analysis:	5/5/23 11:34 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	1.5
Nitrogen	0.22	82
Carbon Monoxide	0.022	Not Detected
Methane	0.00022	0.0019
Carbon Dioxide	0.022	17
Ethane	0.0022	Not Detected
Ethene	0.0022	Not Detected
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister





Air Toxics

Client Sample ID: VMP-15-29-042723

Lab ID#: 2304622B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11050525	Date of Collection:	4/27/23 1:22:00 PM
Dil. Factor:	2.24	Date of Analysis:	5/5/23 11:58 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	1.8
Nitrogen	0.22	81
Carbon Monoxide	0.022	Not Detected
Methane	0.00022	0.00020 J
Carbon Dioxide	0.022	17
Ethane	0.0022	Not Detected
Ethene	0.0022	Not Detected
Helium	0.11	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2304622B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11050503a	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/4/23 07:05 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	0.0029 J
Nitrogen	0.10	0.039 J
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected
Ethane	0.0010	Not Detected
Ethene	0.0010	Not Detected

J = Estimated value.

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2304622B-06B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11050504c	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	5/4/23 07:34 PM

Compound	Rpt. Limit (%)	Amount (%)
Helium	0.050	Not Detected

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: CCV

Lab ID#: 2304622B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11050501	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/4/23 06:11 PM

Compound	%Recovery
Oxygen	100
Nitrogen	94
Carbon Monoxide	95
Methane	95
Carbon Dioxide	100
-----	
Ethane	94
Ethene	97
Helium	94

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCS

Lab ID#: 2304622B-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11050502	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/4/23 06:37 PM

Compound	%Recovery	Method Limits
Oxygen	103	85-115
Nitrogen	94	85-115
Carbon Monoxide	93	85-115
Methane	95	85-115
Carbon Dioxide	100	85-115
Ethane	93	85-115
Ethene	96	85-115
Helium	99	85-115

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCSD

Lab ID#: 2304622B-08AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11050526	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/5/23 12:27 PM

Compound	%Recovery	Method Limits
Oxygen	102	85-115
Nitrogen	94	85-115
Carbon Monoxide	94	85-115
Methane	96	85-115
Carbon Dioxide	101	85-115
Ethane	94	85-115
Ethene	97	85-115
Helium	99	85-115

Container Type: NA - Not Applicable

8/10/2023

Mr. Samuel Fisher

AECOM

100 N. Broadway, 20th Floor

St. Louis MO 63102

Project Name: Roxana Quarterly Soil Vapor

Project #: 60697537-4.3.2

Workorder #: 2307602A

Dear Mr. Samuel Fisher

The following report includes the data for the above referenced project for sample(s) received on 7/27/2023 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker

Project Manager

**WORK ORDER #: 2307602A**

Work Order Summary

<b>CLIENT:</b>	Mr. Samuel Fisher AECOM 100 N. Broadway, 20th Floor St. Louis, MO 63102	<b>BILL TO:</b>	Accounts Payable Austin AECOM PO Box 203970 Austin, TX 78720
<b>PHONE:</b>	314-296-1969	<b>P.O. #</b>	150605
<b>FAX:</b>		<b>PROJECT #</b>	60697537-4.3.2 Roxana Quarterly Soil
<b>DATE RECEIVED:</b>	07/27/2023	<b>CONTACT:</b>	Vapor Brran Whittaker
<b>DATE COMPLETED:</b>	08/10/2023		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	VMP-55-20-072623	TO-15	9 "Hg	9.7 psi
02A	VMP-15-5-072623	TO-15	7.8 "Hg	9.7 psi
03A	VMP-15-21.5-072623	TO-15	8.4 "Hg	10 psi
04A	VMP-15-25.5-072623	TO-15	9.6 "Hg	9.9 psi
05A	VMP-15-29-072623	TO-15	7.8 "Hg	9.8 psi
06A	Lab Blank	TO-15	NA	NA
07A	CCV	TO-15	NA	NA
08A	LCS	TO-15	NA	NA
08AA	LCSD	TO-15	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 08/10/23

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA ELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program) CA300005-017  
 Eurofins Environment Testing Northern California, LLC certifies that the test results contained in this report meet all requirements of the 2016 TNI Standard.

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**LABORATORY NARRATIVE**  
**EPA Method TO-15**  
**AECOM**  
**Workorder# 2307602A**

Five 1 Liter Summa Canister samples were received on July 27, 2023. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Dilution was performed on sample VMP-55-20-072623 due to the presence of high level target species.

High concentrations of VOCs in sample VMP-55-20-072623 required an off-line dilution using a Tedlar bag. Toluene is a common contaminant in Tedlar bags. The vendor provided Tedlar bag certification is for a subset of analytes and the lot indicates Toluene was at 2.0 ppbv which is certified above the laboratory reporting limit of 1.0 ppbv therefore a CN-flag was applied to the associated concentrations.

**Definition of Data Qualifying Flags**

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds  
EPA METHOD TO-15 GC/MS FULL SCAN**

**Client Sample ID: VMP-55-20-072623**

**Lab ID#: 2307602A-01A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Ethanol	740	1800	1400	3400
Acetone	740	560 J	1800	1300 J
2-Propanol	300	530	730	1300
Methylene Chloride	740	120 J	2600	400 J
Hexane	74	75	260	260
Cyclohexane	74	210	250	710
2,2,4-Trimethylpentane	74	4100	340	19000
Benzene	74	32 J	240	100 J
1,2-Dichloropropane	74	43 J	340	200 J
Toluene	150	990 CN	560	3700 CN
Ethyl Benzene	74	32 J	320	140 J
m,p-Xylene	150	89 J	640	390 J
o-Xylene	74	22 J	320	95 J
Styrene	74	36 J	320	150 J
Butane	300	580	700	1400
Isopentane	300	14000	870	42000

**Client Sample ID: VMP-15-5-072623**

**Lab ID#: 2307602A-02A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Freon 12	1.1	0.48 J	5.5	2.4 J
Acetone	11	18	27	42
2-Propanol	4.5	4.0 J	11	9.9 J
2-Butanone (Methyl Ethyl Ketone)	4.5	0.88 J	13	2.6 J
Chloroform	1.1	0.45 J	5.5	2.2 J
Tetrachloroethene	1.1	0.40 J	7.6	2.7 J

**Client Sample ID: VMP-15-21.5-072623**

**Lab ID#: 2307602A-03A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Freon 12	1.2	0.27 J	5.8	1.4 J

**Summary of Detected Compounds  
EPA METHOD TO-15 GC/MS FULL SCAN**

**Client Sample ID: VMP-15-21.5-072623**

**Lab ID#: 2307602A-03A**

Acetone	12	5.0 J	28	12 J
2-Propanol	4.7	1.5 J	11	3.7 J

**Client Sample ID: VMP-15-25.5-072623**

**Lab ID#: 2307602A-04A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Ethanol	12	6.4 J	23	12 J
Acetone	12	11 J	29	27 J
2-Butanone (Methyl Ethyl Ketone)	4.9	1.2 J	14	3.7 J
Chloroform	1.2	0.66 J	6.0	3.2 J

**Client Sample ID: VMP-15-29-072623**

**Lab ID#: 2307602A-05A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Freon 12	1.1	0.27 J	5.6	1.4 J
Acetone	11	5.1 J	27	12 J
2-Propanol	4.5	1.7 J	11	4.2 J
Tetrahydrofuran	1.1	0.74 J	3.3	2.2 J
Chloroform	1.1	3.9	5.5	19



Air Toxics

Client Sample ID: VMP-55-20-072623

Lab ID#: 2307602A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080132	Date of Collection:	7/26/23 9:51:00 AM
Dil. Factor:	148	Date of Analysis:	8/2/23 06:38 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	74	Not Detected	360	Not Detected
Freon 114	74	Not Detected	520	Not Detected
Chloromethane	740	Not Detected	1500	Not Detected
Vinyl Chloride	74	Not Detected	190	Not Detected
1,3-Butadiene	74	Not Detected	160	Not Detected
Bromomethane	740	Not Detected	2900	Not Detected
Chloroethane	300	Not Detected	780	Not Detected
Freon 11	74	Not Detected	420	Not Detected
Ethanol	740	1800	1400	3400
Freon 113	74	Not Detected	570	Not Detected
1,1-Dichloroethene	74	Not Detected	290	Not Detected
Acetone	740	560 J	1800	1300 J
2-Propanol	300	530	730	1300
Carbon Disulfide	300	Not Detected	920	Not Detected
3-Chloropropene	300	Not Detected	930	Not Detected
Methylene Chloride	740	120 J	2600	400 J
Methyl tert-butyl ether	300	Not Detected	1100	Not Detected
trans-1,2-Dichloroethene	74	Not Detected	290	Not Detected
Hexane	74	75	260	260
1,1-Dichloroethane	74	Not Detected	300	Not Detected
2-Butanone (Methyl Ethyl Ketone)	300	Not Detected	870	Not Detected
cis-1,2-Dichloroethene	74	Not Detected	290	Not Detected
Tetrahydrofuran	74	Not Detected	220	Not Detected
Chloroform	74	Not Detected	360	Not Detected
1,1,1-Trichloroethane	74	Not Detected	400	Not Detected
Cyclohexane	74	210	250	710
Carbon Tetrachloride	74	Not Detected	460	Not Detected
2,2,4-Trimethylpentane	74	4100	340	19000
Benzene	74	32 J	240	100 J
1,2-Dichloroethane	74	Not Detected	300	Not Detected
Heptane	74	Not Detected	300	Not Detected
Trichloroethene	74	Not Detected	400	Not Detected
1,2-Dichloropropane	74	43 J	340	200 J
1,4-Dioxane	300	Not Detected	1100	Not Detected
Bromodichloromethane	74	Not Detected	500	Not Detected
cis-1,3-Dichloropropene	74	Not Detected	340	Not Detected
4-Methyl-2-pentanone	74	Not Detected	300	Not Detected
Toluene	150	990 CN	560	3700 CN
trans-1,3-Dichloropropene	74	Not Detected	340	Not Detected
1,1,2-Trichloroethane	74	Not Detected	400	Not Detected
Tetrachloroethene	74	Not Detected	500	Not Detected
2-Hexanone	300	Not Detected	1200	Not Detected



Air Toxics

Client Sample ID: VMP-55-20-072623

Lab ID#: 2307602A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080132	Date of Collection:	7/26/23 9:51:00 AM
Dil. Factor:	148	Date of Analysis:	8/2/23 06:38 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	74	Not Detected	630	Not Detected
1,2-Dibromoethane (EDB)	74	Not Detected	570	Not Detected
Chlorobenzene	74	Not Detected	340	Not Detected
Ethyl Benzene	74	32 J	320	140 J
m,p-Xylene	150	89 J	640	390 J
o-Xylene	74	22 J	320	95 J
Styrene	74	36 J	320	150 J
Bromoform	74	Not Detected	760	Not Detected
Cumene	74	Not Detected	360	Not Detected
1,1,2,2-Tetrachloroethane	74	Not Detected	510	Not Detected
Propylbenzene	74	Not Detected	360	Not Detected
4-Ethyltoluene	74	Not Detected	360	Not Detected
1,3,5-Trimethylbenzene	74	Not Detected	360	Not Detected
1,2,4-Trimethylbenzene	74	Not Detected	360	Not Detected
1,3-Dichlorobenzene	74	Not Detected	440	Not Detected
1,4-Dichlorobenzene	74	Not Detected	440	Not Detected
alpha-Chlorotoluene	74	Not Detected	380	Not Detected
1,2-Dichlorobenzene	74	Not Detected	440	Not Detected
1,2,4-Trichlorobenzene	300	Not Detected	2200	Not Detected
Hexachlorobutadiene	300	Not Detected	3200	Not Detected
Butane	300	580	700	1400
Isopentane	300	14000	870	42000

J = Estimated value.

CN =See Case Narrative explanation

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	112	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: VMP-15-5-072623

Lab ID#: 2307602A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080116	Date of Collection:	7/26/23 11:00:00 AM
Dil. Factor:	2.24	Date of Analysis:	8/1/23 08:00 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	0.48 J	5.5	2.4 J
Freon 114	1.1	Not Detected	7.8	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,3-Butadiene	1.1	Not Detected	2.5	Not Detected
Bromomethane	11	Not Detected	43	Not Detected
Chloroethane	4.5	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.3	Not Detected
Ethanol	11	Not Detected	21	Not Detected
Freon 113	1.1	Not Detected	8.6	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Acetone	11	18	27	42
2-Propanol	4.5	4.0 J	11	9.9 J
Carbon Disulfide	4.5	Not Detected	14	Not Detected
3-Chloropropene	4.5	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	39	Not Detected
Methyl tert-butyl ether	4.5	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Hexane	1.1	Not Detected	3.9	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.5	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.5	0.88 J	13	2.6 J
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.3	Not Detected
Chloroform	1.1	0.45 J	5.5	2.2 J
1,1,1-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Cyclohexane	1.1	Not Detected	3.8	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.0	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.2	Not Detected
Benzene	1.1	Not Detected	3.6	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.5	Not Detected
Heptane	1.1	Not Detected	4.6	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.2	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.5	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.6	Not Detected
Toluene	2.2	Not Detected	8.4	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Tetrachloroethene	1.1	0.40 J	7.6	2.7 J
2-Hexanone	4.5	Not Detected	18	Not Detected

Client Sample ID: VMP-15-5-072623

Lab ID#: 2307602A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080116	Date of Collection:	7/26/23 11:00:00 AM
Dil. Factor:	2.24	Date of Analysis:	8/1/23 08:00 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.5	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.6	Not Detected
Chlorobenzene	1.1	Not Detected	5.2	Not Detected
Ethyl Benzene	1.1	Not Detected	4.9	Not Detected
m,p-Xylene	2.2	Not Detected	9.7	Not Detected
o-Xylene	1.1	Not Detected	4.9	Not Detected
Styrene	1.1	Not Detected	4.8	Not Detected
Bromoform	1.1	Not Detected	12	Not Detected
Cumene	1.1	Not Detected	5.5	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.7	Not Detected
Propylbenzene	1.1	Not Detected	5.5	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.5	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.5	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.5	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.8	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
1,2,4-Trichlorobenzene	4.5	Not Detected	33	Not Detected
Hexachlorobutadiene	4.5	Not Detected	48	Not Detected
Butane	4.5	Not Detected	11	Not Detected
Isopentane	4.5	Not Detected	13	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: VMP-15-21.5-072623

Lab ID#: 2307602A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080117	Date of Collection:	7/26/23 11:19:00 AM
Dil. Factor:	2.33	Date of Analysis:	8/1/23 08:32 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	0.27 J	5.8	1.4 J
Freon 114	1.2	Not Detected	8.1	Not Detected
Chloromethane	12	Not Detected	24	Not Detected
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,3-Butadiene	1.2	Not Detected	2.6	Not Detected
Bromomethane	12	Not Detected	45	Not Detected
Chloroethane	4.7	Not Detected	12	Not Detected
Freon 11	1.2	Not Detected	6.5	Not Detected
Ethanol	12	Not Detected	22	Not Detected
Freon 113	1.2	Not Detected	8.9	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Acetone	12	5.0 J	28	12 J
2-Propanol	4.7	1.5 J	11	3.7 J
Carbon Disulfide	4.7	Not Detected	14	Not Detected
3-Chloropropene	4.7	Not Detected	14	Not Detected
Methylene Chloride	12	Not Detected	40	Not Detected
Methyl tert-butyl ether	4.7	Not Detected	17	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Hexane	1.2	Not Detected	4.1	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.7	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.7	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.4	Not Detected
Chloroform	1.2	Not Detected	5.7	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Cyclohexane	1.2	Not Detected	4.0	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.3	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.4	Not Detected
Benzene	1.2	Not Detected	3.7	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.7	Not Detected
Heptane	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.4	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected
Bromodichloromethane	1.2	Not Detected	7.8	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.3	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	4.8	Not Detected
Toluene	2.3	Not Detected	8.8	Not Detected
trans-1,3-Dichloropropene	1.2	Not Detected	5.3	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
2-Hexanone	4.7	Not Detected	19	Not Detected





Air Toxics

Client Sample ID: VMP-15-21.5-072623

Lab ID#: 2307602A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080117	Date of Collection: 7/26/23 11:19:00 AM
Dil. Factor:	2.33	Date of Analysis: 8/1/23 08:32 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	9.9	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.0	Not Detected
Chlorobenzene	1.2	Not Detected	5.4	Not Detected
Ethyl Benzene	1.2	Not Detected	5.0	Not Detected
m,p-Xylene	2.3	Not Detected	10	Not Detected
o-Xylene	1.2	Not Detected	5.0	Not Detected
Styrene	1.2	Not Detected	5.0	Not Detected
Bromoform	1.2	Not Detected	12	Not Detected
Cumene	1.2	Not Detected	5.7	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.0	Not Detected
Propylbenzene	1.2	Not Detected	5.7	Not Detected
4-Ethyltoluene	1.2	Not Detected	5.7	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	5.7	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.7	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.0	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.0	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.0	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.0	Not Detected
1,2,4-Trichlorobenzene	4.7	Not Detected	34	Not Detected
Hexachlorobutadiene	4.7	Not Detected	50	Not Detected
Butane	4.7	Not Detected	11	Not Detected
Isopentane	4.7	Not Detected	14	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: VMP-15-25.5-072623

Lab ID#: 2307602A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080120	Date of Collection:	7/26/23 11:42:00 AM
Dil. Factor:	2.46	Date of Analysis:	8/1/23 11:37 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	6.1	Not Detected
Freon 114	1.2	Not Detected	8.6	Not Detected
Chloromethane	12	Not Detected	25	Not Detected
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,3-Butadiene	1.2	Not Detected	2.7	Not Detected
Bromomethane	12	Not Detected	48	Not Detected
Chloroethane	4.9	Not Detected	13	Not Detected
Freon 11	1.2	Not Detected	6.9	Not Detected
Ethanol	12	6.4 J	23	12 J
Freon 113	1.2	Not Detected	9.4	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Acetone	12	11 J	29	27 J
2-Propanol	4.9	Not Detected	12	Not Detected
Carbon Disulfide	4.9	Not Detected	15	Not Detected
3-Chloropropene	4.9	Not Detected	15	Not Detected
Methylene Chloride	12	Not Detected	43	Not Detected
Methyl tert-butyl ether	4.9	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Hexane	1.2	Not Detected	4.3	Not Detected
1,1-Dichloroethane	1.2	Not Detected	5.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.9	1.2 J	14	3.7 J
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.6	Not Detected
Chloroform	1.2	0.66 J	6.0	3.2 J
1,1,1-Trichloroethane	1.2	Not Detected	6.7	Not Detected
Cyclohexane	1.2	Not Detected	4.2	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.7	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.7	Not Detected
Benzene	1.2	Not Detected	3.9	Not Detected
1,2-Dichloroethane	1.2	Not Detected	5.0	Not Detected
Heptane	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.7	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected
Bromodichloromethane	1.2	Not Detected	8.2	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	5.0	Not Detected
Toluene	2.5	Not Detected	9.3	Not Detected
trans-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.3	Not Detected
2-Hexanone	4.9	Not Detected	20	Not Detected

Client Sample ID: VMP-15-25.5-072623

Lab ID#: 2307602A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080120	Date of Collection:	7/26/23 11:42:00 AM
Dil. Factor:	2.46	Date of Analysis:	8/1/23 11:37 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.4	Not Detected
Chlorobenzene	1.2	Not Detected	5.7	Not Detected
Ethyl Benzene	1.2	Not Detected	5.3	Not Detected
m,p-Xylene	2.5	Not Detected	11	Not Detected
o-Xylene	1.2	Not Detected	5.3	Not Detected
Styrene	1.2	Not Detected	5.2	Not Detected
Bromoform	1.2	Not Detected	13	Not Detected
Cumene	1.2	Not Detected	6.0	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.4	Not Detected
Propylbenzene	1.2	Not Detected	6.0	Not Detected
4-Ethyltoluene	1.2	Not Detected	6.0	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	6.0	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	6.0	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.4	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
1,2,4-Trichlorobenzene	4.9	Not Detected	36	Not Detected
Hexachlorobutadiene	4.9	Not Detected	52	Not Detected
Butane	4.9	Not Detected	12	Not Detected
Isopentane	4.9	Not Detected	14	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: VMP-15-29-072623

Lab ID#: 2307602A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080118	Date of Collection:	7/26/23 12:05:00 PM
Dil. Factor:	2.25	Date of Analysis:	8/1/23 09:03 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	0.27 J	5.6	1.4 J
Freon 114	1.1	Not Detected	7.9	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,3-Butadiene	1.1	Not Detected	2.5	Not Detected
Bromomethane	11	Not Detected	44	Not Detected
Chloroethane	4.5	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.3	Not Detected
Ethanol	11	Not Detected	21	Not Detected
Freon 113	1.1	Not Detected	8.6	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Acetone	11	5.1 J	27	12 J
2-Propanol	4.5	1.7 J	11	4.2 J
Carbon Disulfide	4.5	Not Detected	14	Not Detected
3-Chloropropene	4.5	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	39	Not Detected
Methyl tert-butyl ether	4.5	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Hexane	1.1	Not Detected	4.0	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.5	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrahydrofuran	1.1	0.74 J	3.3	2.2 J
Chloroform	1.1	3.9	5.5	19
1,1,1-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Cyclohexane	1.1	Not Detected	3.9	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.1	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.2	Not Detected
Benzene	1.1	Not Detected	3.6	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.6	Not Detected
Heptane	1.1	Not Detected	4.6	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.2	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.5	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.6	Not Detected
Toluene	2.2	Not Detected	8.5	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Tetrachloroethene	1.1	Not Detected	7.6	Not Detected
2-Hexanone	4.5	Not Detected	18	Not Detected



Air Toxics

Client Sample ID: VMP-15-29-072623

Lab ID#: 2307602A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080118	Date of Collection:	7/26/23 12:05:00 PM
Dil. Factor:	2.25	Date of Analysis:	8/1/23 09:03 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.6	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.6	Not Detected
Chlorobenzene	1.1	Not Detected	5.2	Not Detected
Ethyl Benzene	1.1	Not Detected	4.9	Not Detected
m,p-Xylene	2.2	Not Detected	9.8	Not Detected
o-Xylene	1.1	Not Detected	4.9	Not Detected
Styrene	1.1	Not Detected	4.8	Not Detected
Bromoform	1.1	Not Detected	12	Not Detected
Cumene	1.1	Not Detected	5.5	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.7	Not Detected
Propylbenzene	1.1	Not Detected	5.5	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.5	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.5	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.5	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.8	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.8	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.8	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.8	Not Detected
1,2,4-Trichlorobenzene	4.5	Not Detected	33	Not Detected
Hexachlorobutadiene	4.5	Not Detected	48	Not Detected
Butane	4.5	Not Detected	11	Not Detected
Isopentane	4.5	Not Detected	13	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	94	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2307602A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080107a	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	8/1/23 01:48 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	5.0	Not Detected	9.4	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	1.0	Not Detected	3.8	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

Client Sample ID: Lab Blank

Lab ID#: 2307602A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080107a	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/1/23 01:48 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	1.0	Not Detected	4.3	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Butane	2.0	Not Detected	4.8	Not Detected
Isopentane	2.0	Not Detected	5.9	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 2307602A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080103	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/1/23 11:36 AM

Compound	%Recovery
Freon 12	105
Freon 114	107
Chloromethane	100
Vinyl Chloride	101
1,3-Butadiene	105
Bromomethane	114
Chloroethane	94
Freon 11	106
Ethanol	105
Freon 113	101
1,1-Dichloroethene	104
Acetone	101
2-Propanol	100
Carbon Disulfide	101
3-Chloropropene	100
Methylene Chloride	106
Methyl tert-butyl ether	103
trans-1,2-Dichloroethene	107
Hexane	103
1,1-Dichloroethane	104
2-Butanone (Methyl Ethyl Ketone)	107
cis-1,2-Dichloroethene	110
Tetrahydrofuran	108
Chloroform	103
1,1,1-Trichloroethane	105
Cyclohexane	104
Carbon Tetrachloride	104
2,2,4-Trimethylpentane	108
Benzene	100
1,2-Dichloroethane	108
Heptane	104
Trichloroethene	104
1,2-Dichloropropane	97
1,4-Dioxane	105
Bromodichloromethane	102
cis-1,3-Dichloropropene	106
4-Methyl-2-pentanone	101
Toluene	101
trans-1,3-Dichloropropene	106
1,1,2-Trichloroethane	101
Tetrachloroethene	104
2-Hexanone	102



Client Sample ID: CCV

Lab ID#: 2307602A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080103	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/1/23 11:36 AM

Compound	%Recovery
Dibromochloromethane	103
1,2-Dibromoethane (EDB)	103
Chlorobenzene	100
Ethyl Benzene	105
m,p-Xylene	108
o-Xylene	109
Styrene	115
Bromoform	107
Cumene	112
1,1,2,2-Tetrachloroethane	98
Propylbenzene	111
4-Ethyltoluene	109
1,3,5-Trimethylbenzene	112
1,2,4-Trimethylbenzene	116
1,3-Dichlorobenzene	107
1,4-Dichlorobenzene	107
alpha-Chlorotoluene	111
1,2-Dichlorobenzene	106
1,2,4-Trichlorobenzene	106
Hexachlorobutadiene	109
Butane	101
Isopentane	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	107	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 2307602A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080104	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/1/23 12:05 PM

Compound	%Recovery	Method Limits
Freon 12	97	70-130
Freon 114	99	70-130
Chloromethane	93	70-130
Vinyl Chloride	96	70-130
1,3-Butadiene	98	70-130
Bromomethane	107	70-130
Chloroethane	89	70-130
Freon 11	97	70-130
Ethanol	115	70-130
Freon 113	92	70-130
1,1-Dichloroethene	93	70-130
Acetone	98	70-130
2-Propanol	98	70-130
Carbon Disulfide	97	70-130
3-Chloropropene	94	70-130
Methylene Chloride	96	70-130
Methyl tert-butyl ether	99	70-130
trans-1,2-Dichloroethene	99	70-130
Hexane	96	70-130
1,1-Dichloroethane	96	70-130
2-Butanone (Methyl Ethyl Ketone)	99	70-130
cis-1,2-Dichloroethene	99	70-130
Tetrahydrofuran	109	70-130
Chloroform	96	70-130
1,1,1-Trichloroethane	97	70-130
Cyclohexane	101	70-130
Carbon Tetrachloride	96	70-130
2,2,4-Trimethylpentane	102	70-130
Benzene	99	70-130
1,2-Dichloroethane	105	70-130
Heptane	105	70-130
Trichloroethene	99	70-130
1,2-Dichloropropane	93	70-130
1,4-Dioxane	102	70-130
Bromodichloromethane	97	70-130
cis-1,3-Dichloropropene	101	70-130
4-Methyl-2-pentanone	101	70-130
Toluene	96	70-130
trans-1,3-Dichloropropene	104	70-130
1,1,2-Trichloroethane	100	70-130
Tetrachloroethene	103	70-130
2-Hexanone	101	70-130

Client Sample ID: LCS

Lab ID#: 2307602A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080104	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/1/23 12:05 PM

Compound	%Recovery	Method Limits
Dibromochloromethane	99	70-130
1,2-Dibromoethane (EDB)	100	70-130
Chlorobenzene	101	70-130
Ethyl Benzene	107	70-130
m,p-Xylene	108	70-130
o-Xylene	110	70-130
Styrene	112	70-130
Bromoform	103	70-130
Cumene	111	70-130
1,1,2,2-Tetrachloroethane	96	70-130
Propylbenzene	108	70-130
4-Ethyltoluene	105	70-130
1,3,5-Trimethylbenzene	110	70-130
1,2,4-Trimethylbenzene	112	70-130
1,3-Dichlorobenzene	103	70-130
1,4-Dichlorobenzene	102	70-130
alpha-Chlorotoluene	105	70-130
1,2-Dichlorobenzene	101	70-130
1,2,4-Trichlorobenzene	99	70-130
Hexachlorobutadiene	103	70-130
Butane	94	60-140
Isopentane	95	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	107	70-130

Client Sample ID: LCSD

Lab ID#: 2307602A-08AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080105	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/1/23 12:35 PM

Compound	%Recovery	Method Limits
Freon 12	101	70-130
Freon 114	104	70-130
Chloromethane	98	70-130
Vinyl Chloride	102	70-130
1,3-Butadiene	103	70-130
Bromomethane	114	70-130
Chloroethane	97	70-130
Freon 11	100	70-130
Ethanol	120	70-130
Freon 113	96	70-130
1,1-Dichloroethene	99	70-130
Acetone	100	70-130
2-Propanol	104	70-130
Carbon Disulfide	102	70-130
3-Chloropropene	103	70-130
Methylene Chloride	100	70-130
Methyl tert-butyl ether	105	70-130
trans-1,2-Dichloroethene	106	70-130
Hexane	103	70-130
1,1-Dichloroethane	100	70-130
2-Butanone (Methyl Ethyl Ketone)	106	70-130
cis-1,2-Dichloroethene	105	70-130
Tetrahydrofuran	115	70-130
Chloroform	98	70-130
1,1,1-Trichloroethane	102	70-130
Cyclohexane	108	70-130
Carbon Tetrachloride	100	70-130
2,2,4-Trimethylpentane	108	70-130
Benzene	99	70-130
1,2-Dichloroethane	102	70-130
Heptane	104	70-130
Trichloroethene	100	70-130
1,2-Dichloropropane	92	70-130
1,4-Dioxane	103	70-130
Bromodichloromethane	94	70-130
cis-1,3-Dichloropropene	101	70-130
4-Methyl-2-pentanone	101	70-130
Toluene	96	70-130
trans-1,3-Dichloropropene	103	70-130
1,1,2-Trichloroethane	100	70-130
Tetrachloroethene	102	70-130
2-Hexanone	100	70-130

Client Sample ID: LCSD

Lab ID#: 2307602A-08AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	p080105	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/1/23 12:35 PM

Compound	%Recovery	Method Limits
Dibromochloromethane	98	70-130
1,2-Dibromoethane (EDB)	100	70-130
Chlorobenzene	100	70-130
Ethyl Benzene	105	70-130
m,p-Xylene	108	70-130
o-Xylene	109	70-130
Styrene	109	70-130
Bromoform	102	70-130
Cumene	110	70-130
1,1,2,2-Tetrachloroethane	94	70-130
Propylbenzene	106	70-130
4-Ethyltoluene	104	70-130
1,3,5-Trimethylbenzene	107	70-130
1,2,4-Trimethylbenzene	111	70-130
1,3-Dichlorobenzene	102	70-130
1,4-Dichlorobenzene	101	70-130
alpha-Chlorotoluene	104	70-130
1,2-Dichlorobenzene	100	70-130
1,2,4-Trichlorobenzene	101	70-130
Hexachlorobutadiene	103	70-130
Butane	101	60-140
Isopentane	98	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	104	70-130

8/9/2023

Mr. Samuel Fisher

AECOM

100 N. Broadway, 20th Floor

St. Louis MO 63102

Project Name: Roxana Quarterly Soil Vapor

Project #: 60697537-4.3.2

Workorder #: 2307602B

Dear Mr. Samuel Fisher

The following report includes the data for the above referenced project for sample(s) received on 7/27/2023 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker

Project Manager

**WORK ORDER #: 2307602B**

Work Order Summary

<b>CLIENT:</b>	Mr. Samuel Fisher AECOM 100 N. Broadway, 20th Floor St. Louis, MO 63102	<b>BILL TO:</b>	Accounts Payable Austin AECOM PO Box 203970 Austin, TX 78720
<b>PHONE:</b>	314-296-1969	<b>P.O. #</b>	150605
<b>FAX:</b>		<b>PROJECT #</b>	60697537-4.3.2 Roxana Quarterly Soil
<b>DATE RECEIVED:</b>	07/27/2023	<b>CONTACT:</b>	Vapor Brran Whittaker
<b>DATE COMPLETED:</b>	08/09/2023		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	VMP-55-20-072623	Modified ASTM D-1946	9 "Hg	9.7 psi
02A	VMP-15-5-072623	Modified ASTM D-1946	7.8 "Hg	9.7 psi
03A	VMP-15-21.5-072623	Modified ASTM D-1946	8.4 "Hg	10 psi
04A	VMP-15-25.5-072623	Modified ASTM D-1946	9.6 "Hg	9.9 psi
05A	VMP-15-29-072623	Modified ASTM D-1946	7.8 "Hg	9.8 psi
06A	Lab Blank	Modified ASTM D-1946	NA	NA
06B	Lab Blank	Modified ASTM D-1946	NA	NA
07A	CCV	Modified ASTM D-1946	NA	NA
08A	LCS	Modified ASTM D-1946	NA	NA
08AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 08/09/23

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA ELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program) CA300005-017  
 Eurofins Environment Testing Northern California, LLC certifies that the test results contained in this report meet all requirements of the 2016 TNI Standard.

*This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.*  
 180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

**LABORATORY NARRATIVE**  
**Modified ASTM D-1946**  
**AECOM**  
**Workorder# 2307602B**

Five 1 Liter Summa Canister samples were received on July 27, 2023. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Since Nitrogen is used to pressurize samples, the reported Nitrogen values are calculated by adding all the sample components and subtracting from 100%.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>ASTM D-1946</i>	<i>ATL Modifications</i>
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a $\geq 95\%$ accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.



**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit.

**Definition of Data Qualifying Flags**

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit.

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the detection limit.

M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds  
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

**Client Sample ID: VMP-55-20-072623**

**Lab ID#: 2307602B-01A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.24	1.6
Nitrogen	0.24	80
Methane	0.00024	1.2
Carbon Dioxide	0.024	16
Ethane	0.0024	0.00038 J
Helium	0.12	0.029 J

**Client Sample ID: VMP-15-5-072623**

**Lab ID#: 2307602B-02A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.22	11
Nitrogen	0.22	81
Methane	0.00022	0.000069 J
Carbon Dioxide	0.022	7.6
Helium	0.11	0.027 J

**Client Sample ID: VMP-15-21.5-072623**

**Lab ID#: 2307602B-03A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.23	2.6
Nitrogen	0.23	81
Carbon Dioxide	0.023	16
Helium	0.12	0.013 J

**Client Sample ID: VMP-15-25.5-072623**

**Lab ID#: 2307602B-04A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.25	2.6
Nitrogen	0.25	80



**Summary of Detected Compounds**  
**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

**Client Sample ID: VMP-15-25.5-072623**

**Lab ID#: 2307602B-04A**

Carbon Dioxide	0.025	17
Helium	0.12	0.059 J

**Client Sample ID: VMP-15-29-072623**

**Lab ID#: 2307602B-05A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.22	2.7
Nitrogen	0.22	80
Carbon Dioxide	0.022	17
Helium	0.11	0.0054 J



Air Toxics

Client Sample ID: VMP-55-20-072623

Lab ID#: 2307602B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11080407	Date of Collection:	7/26/23 9:51:00 AM
Dil. Factor:	2.37	Date of Analysis:	8/4/23 04:48 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	1.6
Nitrogen	0.24	80
Carbon Monoxide	0.024	Not Detected
Methane	0.00024	1.2
Carbon Dioxide	0.024	16
Ethane	0.0024	0.00038 J
Ethene	0.0024	Not Detected
Helium	0.12	0.029 J

J = Estimated value.

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-5-072623

Lab ID#: 2307602B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11080408	Date of Collection: 7/26/23 11:00:00 AM
Dil. Factor:	2.24	Date of Analysis: 8/4/23 05:12 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	11
Nitrogen	0.22	81
Carbon Monoxide	0.022	Not Detected
Methane	0.00022	0.000069 J
Carbon Dioxide	0.022	7.6
Ethane	0.0022	Not Detected
Ethene	0.0022	Not Detected
Helium	0.11	0.027 J

J = Estimated value.

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-21.5-072623

Lab ID#: 2307602B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11080409	Date of Collection: 7/26/23 11:19:00 AM
Dil. Factor:	2.33	Date of Analysis: 8/4/23 05:36 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	2.6
Nitrogen	0.23	81
Carbon Monoxide	0.023	Not Detected
Methane	0.00023	Not Detected
Carbon Dioxide	0.023	16
Ethane	0.0023	Not Detected
Ethene	0.0023	Not Detected
Helium	0.12	0.013 J

J = Estimated value.

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-25.5-072623

Lab ID#: 2307602B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11080410	Date of Collection: 7/26/23 11:42:00 AM
Dil. Factor:	2.46	Date of Analysis: 8/4/23 05:59 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.25	2.6
Nitrogen	0.25	80
Carbon Monoxide	0.025	Not Detected
Methane	0.00025	Not Detected
Carbon Dioxide	0.025	17
Ethane	0.0025	Not Detected
Ethene	0.0025	Not Detected
Helium	0.12	0.059 J

J = Estimated value.

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-29-072623

Lab ID#: 2307602B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11080411	Date of Collection: 7/26/23 12:05:00 PM
Dil. Factor:	2.25	Date of Analysis: 8/4/23 06:23 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	2.7
Nitrogen	0.22	80
Carbon Monoxide	0.022	Not Detected
Methane	0.00022	Not Detected
Carbon Dioxide	0.022	17
Ethane	0.0022	Not Detected
Ethene	0.0022	Not Detected
Helium	0.11	0.0054 J

J = Estimated value.

Container Type: 1 Liter Summa Canister





Client Sample ID: Lab Blank

Lab ID#: 2307602B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11080404	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/4/23 03:24 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Nitrogen	0.10	Not Detected
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected
Ethane	0.0010	Not Detected
Ethene	0.0010	Not Detected

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2307602B-06B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11080403c	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	8/4/23 03:00 PM

Compound	Rpt. Limit (%)	Amount (%)
Helium	0.050	Not Detected

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: CCV

Lab ID#: 2307602B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11080401	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/4/23 02:05 PM

Compound	%Recovery
Oxygen	98
Nitrogen	94
Carbon Monoxide	94
Methane	96
Carbon Dioxide	100
-----	
Ethane	99
Ethene	100
Helium	95

Container Type: NA - Not Applicable

Client Sample ID: LCS

Lab ID#: 2307602B-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11080402	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/4/23 02:33 PM

Compound	%Recovery	Method Limits
Oxygen	99	85-115
Nitrogen	94	85-115
Carbon Monoxide	95	85-115
Methane	97	85-115
Carbon Dioxide	100	85-115
Ethane	99	85-115
Ethene	100	85-115
Helium	99	85-115

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCSD

Lab ID#: 2307602B-08AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11080426	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/5/23 10:32 AM

Compound	%Recovery	Method Limits
Oxygen	99	85-115
Nitrogen	94	85-115
Carbon Monoxide	95	85-115
Methane	101	85-115
Carbon Dioxide	99	85-115
Ethane	103	85-115
Ethene	104	85-115
Helium	99	85-115

Container Type: NA - Not Applicable

11/30/2023

Mr. Samuel Fisher

AECOM

100 N. Broadway, 20th Floor

St. Louis MO 63102

Project Name: Roxana Quarterly Soil Vapor

Project #: 60697537-4.4.2

Workorder #: 2310750A

Dear Mr. Samuel Fisher

The following report includes the data for the above referenced project for sample(s) received on 10/31/2023 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker

Project Manager

**WORK ORDER #: 2310750A**

Work Order Summary

<b>CLIENT:</b>	Mr. Samuel Fisher AECOM 100 N. Broadway, 20th Floor St. Louis, MO 63102	<b>BILL TO:</b>	Accounts Payable Austin AECOM PO Box 203970 Austin, TX 78720
<b>PHONE:</b>	314-296-1969	<b>P.O. #</b>	150605
<b>FAX:</b>		<b>PROJECT #</b>	60697537-4.4.2 Roxana Quarterly Soil
<b>DATE RECEIVED:</b>	10/31/2023	<b>CONTACT:</b>	Vapor Brran Whittaker
<b>DATE COMPLETED:</b>	11/30/2023		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	VMP-55-20-103023	TO-15	7.0 "Hg	10 psi
02A	VMP-15-5-103023	TO-15	5.0 "Hg	10 psi
03A	VMP-15-21.5-103023	TO-15	5.0 "Hg	10 psi
04A	VMP-15-21.5-103023-DUP	TO-15	6.5 "Hg	10 psi
05A	VMP-15-25.5-103023	TO-15	5.0 "Hg	10 psi
06A	VMP-15-29-103023	TO-15	4.0 "Hg	10 psi
07A	Lab Blank	TO-15	NA	NA
08A	CCV	TO-15	NA	NA
09A	LCS	TO-15	NA	NA
09AA	LCSD	TO-15	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 11/30/23

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA ELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program) CA300005-017  
 Eurofins Environment Testing Northern California, LLC certifies that the test results contained in this report meet all requirements of the 2016 TNI Standard.

**LABORATORY NARRATIVE**  
**EPA Method TO-15**  
**AECOM**  
**Workorder# 2310750A**

Six 1 Liter Summa Canister samples were received on October 31, 2023. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

Dilution was performed on sample VMP-55-20-103023 due to the presence of high level target species.

High concentrations of VOCs in sample VMP-55-20-103023 required an off-line dilution using a Tedlar bag. Toluene is a common contaminant in Tedlar bags. The vendor provided Tedlar bag certification is for a subset of analytes and the lot indicates Toluene was at 2.0ppbv which is certified above the laboratory reporting limit of 1.0ppbv therefore a CN-flag was applied to the associated concentrations.

**Definition of Data Qualifying Flags**

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



**Summary of Detected Compounds  
EPA METHOD TO-15 GC/MS FULL SCAN**

**Client Sample ID: VMP-55-20-103023**

**Lab ID#: 2310750A-01A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
2-Propanol	1500	1100 J	3600	2700 J
Hexane	360	420	1300	1500
Tetrahydrofuran	360	720	1100	2100
Cyclohexane	360	2600	1200	9100
2,2,4-Trimethylpentane	360	19000	1700	90000
Toluene	730	320 JCN	2800	1200 JCN
Butane	1500	12000	3500	28000
Isopentane	1500	110000	4300	310000

**Client Sample ID: VMP-15-5-103023**

**Lab ID#: 2310750A-02A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Acetone	10	3.7 J	24	8.7 J
Chloroform	1.0	0.25 J	4.9	1.2 J
Benzene	1.0	0.44 J	3.2	1.4 J

**Client Sample ID: VMP-15-21.5-103023**

**Lab ID#: 2310750A-03A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Chloroform	1.0	0.52 J	4.9	2.5 J

**Client Sample ID: VMP-15-21.5-103023-DUP**

**Lab ID#: 2310750A-04A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Chloroform	1.1	0.46 J	5.2	2.2 J

**Client Sample ID: VMP-15-25.5-103023**

**Lab ID#: 2310750A-05A**

**Summary of Detected Compounds  
EPA METHOD TO-15 GC/MS FULL SCAN**

**Client Sample ID: VMP-15-25.5-103023**

**Lab ID#: 2310750A-05A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Chloroform	1.0	5.5	4.9	27
m,p-Xylene	2.0	0.16 J	8.8	0.72 J

**Client Sample ID: VMP-15-29-103023**

**Lab ID#: 2310750A-06A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Carbon Disulfide	3.9	4.7	12	14
Chloroform	0.97	11	4.7	54
Bromodichloromethane	0.97	0.36 J	6.5	2.4 J



Air Toxics

Client Sample ID: VMP-55-20-103023

Lab ID#: 2310750A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110945	Date of Collection:	10/30/23 11:21:00 A
Dil. Factor:	730	Date of Analysis:	11/9/23 11:44 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	360	Not Detected	1800	Not Detected
Freon 114	360	Not Detected	2600	Not Detected
Chloromethane	3600	Not Detected	7500	Not Detected
Vinyl Chloride	360	Not Detected	930	Not Detected
1,3-Butadiene	360	Not Detected	810	Not Detected
Bromomethane	3600	Not Detected	14000	Not Detected
Chloroethane	1500	Not Detected	3800	Not Detected
Freon 11	360	Not Detected	2000	Not Detected
Ethanol	3600	Not Detected	6900	Not Detected
Freon 113	360	Not Detected	2800	Not Detected
1,1-Dichloroethene	360	Not Detected	1400	Not Detected
Acetone	3600	Not Detected	8700	Not Detected
2-Propanol	1500	1100 J	3600	2700 J
Carbon Disulfide	1500	Not Detected	4500	Not Detected
3-Chloropropene	1500	Not Detected	4600	Not Detected
Methylene Chloride	3600	Not Detected	13000	Not Detected
Methyl tert-butyl ether	1500	Not Detected	5300	Not Detected
trans-1,2-Dichloroethene	360	Not Detected	1400	Not Detected
Hexane	360	420	1300	1500
1,1-Dichloroethane	360	Not Detected	1500	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1500	Not Detected	4300	Not Detected
cis-1,2-Dichloroethene	360	Not Detected	1400	Not Detected
Tetrahydrofuran	360	720	1100	2100
Chloroform	360	Not Detected	1800	Not Detected
1,1,1-Trichloroethane	360	Not Detected	2000	Not Detected
Cyclohexane	360	2600	1200	9100
Carbon Tetrachloride	360	Not Detected	2300	Not Detected
2,2,4-Trimethylpentane	360	19000	1700	90000
Benzene	360	Not Detected	1200	Not Detected
1,2-Dichloroethane	360	Not Detected	1500	Not Detected
Heptane	360	Not Detected	1500	Not Detected
Trichloroethene	360	Not Detected	2000	Not Detected
1,2-Dichloropropane	360	Not Detected	1700	Not Detected
1,4-Dioxane	1500	Not Detected	5300	Not Detected
Bromodichloromethane	360	Not Detected	2400	Not Detected
cis-1,3-Dichloropropene	360	Not Detected	1600	Not Detected
4-Methyl-2-pentanone	360	Not Detected	1500	Not Detected
Toluene	730	320 JCN	2800	1200 JCN
trans-1,3-Dichloropropene	360	Not Detected	1600	Not Detected
1,1,2-Trichloroethane	360	Not Detected	2000	Not Detected
Tetrachloroethene	360	Not Detected	2500	Not Detected
2-Hexanone	1500	Not Detected	6000	Not Detected



Air Toxics

Client Sample ID: VMP-55-20-103023

Lab ID#: 2310750A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110945	Date of Collection:	10/30/23 11:21:00 A
Dil. Factor:	730	Date of Analysis:	11/9/23 11:44 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	360	Not Detected	3100	Not Detected
1,2-Dibromoethane (EDB)	360	Not Detected	2800	Not Detected
Chlorobenzene	360	Not Detected	1700	Not Detected
Ethyl Benzene	360	Not Detected	1600	Not Detected
m,p-Xylene	730	Not Detected	3200	Not Detected
o-Xylene	360	Not Detected	1600	Not Detected
Styrene	360	Not Detected	1600	Not Detected
Bromoform	360	Not Detected	3800	Not Detected
Cumene	360	Not Detected	1800	Not Detected
1,1,2,2-Tetrachloroethane	360	Not Detected	2500	Not Detected
Propylbenzene	360	Not Detected	1800	Not Detected
4-Ethyltoluene	360	Not Detected	1800	Not Detected
1,3,5-Trimethylbenzene	360	Not Detected	1800	Not Detected
1,2,4-Trimethylbenzene	360	Not Detected	1800	Not Detected
1,3-Dichlorobenzene	360	Not Detected	2200	Not Detected
1,4-Dichlorobenzene	360	Not Detected	2200	Not Detected
alpha-Chlorotoluene	360	Not Detected	1900	Not Detected
1,2-Dichlorobenzene	360	Not Detected	2200	Not Detected
1,2,4-Trichlorobenzene	1500	Not Detected	11000	Not Detected
Hexachlorobutadiene	1500	Not Detected	16000	Not Detected
Butane	1500	12000	3500	28000
Isopentane	1500	110000	4300	310000

J = Estimated value.

CN =See Case Narrative explanation

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: VMP-15-5-103023

Lab ID#: 2310750A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110946	Date of Collection:	10/30/23 1:09:00 PM
Dil. Factor:	2.02	Date of Analysis:	11/10/23 12:10 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.0	Not Detected	5.0	Not Detected
Freon 114	1.0	Not Detected	7.1	Not Detected
Chloromethane	10	Not Detected	21	Not Detected
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,3-Butadiene	1.0	Not Detected	2.2	Not Detected
Bromomethane	10	Not Detected	39	Not Detected
Chloroethane	4.0	Not Detected	11	Not Detected
Freon 11	1.0	Not Detected	5.7	Not Detected
Ethanol	10	Not Detected	19	Not Detected
Freon 113	1.0	Not Detected	7.7	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Acetone	10	3.7 J	24	8.7 J
2-Propanol	4.0	Not Detected	9.9	Not Detected
Carbon Disulfide	4.0	Not Detected	12	Not Detected
3-Chloropropene	4.0	Not Detected	13	Not Detected
Methylene Chloride	10	Not Detected	35	Not Detected
Methyl tert-butyl ether	4.0	Not Detected	14	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Hexane	1.0	Not Detected	3.6	Not Detected
1,1-Dichloroethane	1.0	Not Detected	4.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.0	Not Detected	12	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Tetrahydrofuran	1.0	Not Detected	3.0	Not Detected
Chloroform	1.0	0.25 J	4.9	1.2 J
1,1,1-Trichloroethane	1.0	Not Detected	5.5	Not Detected
Cyclohexane	1.0	Not Detected	3.5	Not Detected
Carbon Tetrachloride	1.0	Not Detected	6.4	Not Detected
2,2,4-Trimethylpentane	1.0	Not Detected	4.7	Not Detected
Benzene	1.0	0.44 J	3.2	1.4 J
1,2-Dichloroethane	1.0	Not Detected	4.1	Not Detected
Heptane	1.0	Not Detected	4.1	Not Detected
Trichloroethene	1.0	Not Detected	5.4	Not Detected
1,2-Dichloropropane	1.0	Not Detected	4.7	Not Detected
1,4-Dioxane	4.0	Not Detected	14	Not Detected
Bromodichloromethane	1.0	Not Detected	6.8	Not Detected
cis-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
4-Methyl-2-pentanone	1.0	Not Detected	4.1	Not Detected
Toluene	2.0	Not Detected	7.6	Not Detected
trans-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
1,1,2-Trichloroethane	1.0	Not Detected	5.5	Not Detected
Tetrachloroethene	1.0	Not Detected	6.8	Not Detected
2-Hexanone	4.0	Not Detected	16	Not Detected



Air Toxics

Client Sample ID: VMP-15-5-103023

Lab ID#: 2310750A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110946	Date of Collection:	10/30/23 1:09:00 PM
Dil. Factor:	2.02	Date of Analysis:	11/10/23 12:10 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.0	Not Detected	8.6	Not Detected
1,2-Dibromoethane (EDB)	1.0	Not Detected	7.8	Not Detected
Chlorobenzene	1.0	Not Detected	4.6	Not Detected
Ethyl Benzene	1.0	Not Detected	4.4	Not Detected
m,p-Xylene	2.0	Not Detected	8.8	Not Detected
o-Xylene	1.0	Not Detected	4.4	Not Detected
Styrene	1.0	Not Detected	4.3	Not Detected
Bromoform	1.0	Not Detected	10	Not Detected
Cumene	1.0	Not Detected	5.0	Not Detected
1,1,2,2-Tetrachloroethane	1.0	Not Detected	6.9	Not Detected
Propylbenzene	1.0	Not Detected	5.0	Not Detected
4-Ethyltoluene	1.0	Not Detected	5.0	Not Detected
1,3,5-Trimethylbenzene	1.0	Not Detected	5.0	Not Detected
1,2,4-Trimethylbenzene	1.0	Not Detected	5.0	Not Detected
1,3-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
1,4-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
alpha-Chlorotoluene	1.0	Not Detected	5.2	Not Detected
1,2-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
1,2,4-Trichlorobenzene	4.0	Not Detected	30	Not Detected
Hexachlorobutadiene	4.0	Not Detected	43	Not Detected
Butane	4.0	Not Detected	9.6	Not Detected
Isopentane	4.0	Not Detected	12	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	106	70-130



Air Toxics

Client Sample ID: VMP-15-21.5-103023

Lab ID#: 2310750A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110947	Date of Collection:	10/30/23 1:29:00 PM
Dil. Factor:	2.02	Date of Analysis:	11/10/23 12:35 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.0	Not Detected	5.0	Not Detected
Freon 114	1.0	Not Detected	7.1	Not Detected
Chloromethane	10	Not Detected	21	Not Detected
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,3-Butadiene	1.0	Not Detected	2.2	Not Detected
Bromomethane	10	Not Detected	39	Not Detected
Chloroethane	4.0	Not Detected	11	Not Detected
Freon 11	1.0	Not Detected	5.7	Not Detected
Ethanol	10	Not Detected	19	Not Detected
Freon 113	1.0	Not Detected	7.7	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Acetone	10	Not Detected	24	Not Detected
2-Propanol	4.0	Not Detected	9.9	Not Detected
Carbon Disulfide	4.0	Not Detected	12	Not Detected
3-Chloropropene	4.0	Not Detected	13	Not Detected
Methylene Chloride	10	Not Detected	35	Not Detected
Methyl tert-butyl ether	4.0	Not Detected	14	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Hexane	1.0	Not Detected	3.6	Not Detected
1,1-Dichloroethane	1.0	Not Detected	4.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.0	Not Detected	12	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Tetrahydrofuran	1.0	Not Detected	3.0	Not Detected
Chloroform	1.0	0.52 J	4.9	2.5 J
1,1,1-Trichloroethane	1.0	Not Detected	5.5	Not Detected
Cyclohexane	1.0	Not Detected	3.5	Not Detected
Carbon Tetrachloride	1.0	Not Detected	6.4	Not Detected
2,2,4-Trimethylpentane	1.0	Not Detected	4.7	Not Detected
Benzene	1.0	Not Detected	3.2	Not Detected
1,2-Dichloroethane	1.0	Not Detected	4.1	Not Detected
Heptane	1.0	Not Detected	4.1	Not Detected
Trichloroethene	1.0	Not Detected	5.4	Not Detected
1,2-Dichloropropane	1.0	Not Detected	4.7	Not Detected
1,4-Dioxane	4.0	Not Detected	14	Not Detected
Bromodichloromethane	1.0	Not Detected	6.8	Not Detected
cis-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
4-Methyl-2-pentanone	1.0	Not Detected	4.1	Not Detected
Toluene	2.0	Not Detected	7.6	Not Detected
trans-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
1,1,2-Trichloroethane	1.0	Not Detected	5.5	Not Detected
Tetrachloroethene	1.0	Not Detected	6.8	Not Detected
2-Hexanone	4.0	Not Detected	16	Not Detected



Air Toxics

Client Sample ID: VMP-15-21.5-103023

Lab ID#: 2310750A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110947	Date of Collection:	10/30/23 1:29:00 PM
Dil. Factor:	2.02	Date of Analysis:	11/10/23 12:35 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.0	Not Detected	8.6	Not Detected
1,2-Dibromoethane (EDB)	1.0	Not Detected	7.8	Not Detected
Chlorobenzene	1.0	Not Detected	4.6	Not Detected
Ethyl Benzene	1.0	Not Detected	4.4	Not Detected
m,p-Xylene	2.0	Not Detected	8.8	Not Detected
o-Xylene	1.0	Not Detected	4.4	Not Detected
Styrene	1.0	Not Detected	4.3	Not Detected
Bromoform	1.0	Not Detected	10	Not Detected
Cumene	1.0	Not Detected	5.0	Not Detected
1,1,2,2-Tetrachloroethane	1.0	Not Detected	6.9	Not Detected
Propylbenzene	1.0	Not Detected	5.0	Not Detected
4-Ethyltoluene	1.0	Not Detected	5.0	Not Detected
1,3,5-Trimethylbenzene	1.0	Not Detected	5.0	Not Detected
1,2,4-Trimethylbenzene	1.0	Not Detected	5.0	Not Detected
1,3-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
1,4-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
alpha-Chlorotoluene	1.0	Not Detected	5.2	Not Detected
1,2-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
1,2,4-Trichlorobenzene	4.0	Not Detected	30	Not Detected
Hexachlorobutadiene	4.0	Not Detected	43	Not Detected
Butane	4.0	Not Detected	9.6	Not Detected
Isopentane	4.0	Not Detected	12	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	104	70-130





Air Toxics

Client Sample ID: VMP-15-21.5-103023-DUP

Lab ID#: 2310750A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110948	Date of Collection:	10/30/23 1:29:00 PM
Dil. Factor:	2.14	Date of Analysis:	11/10/23 01:01 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	Not Detected	5.3	Not Detected
Freon 114	1.1	Not Detected	7.5	Not Detected
Chloromethane	11	Not Detected	22	Not Detected
Vinyl Chloride	1.1	Not Detected	2.7	Not Detected
1,3-Butadiene	1.1	Not Detected	2.4	Not Detected
Bromomethane	11	Not Detected	42	Not Detected
Chloroethane	4.3	Not Detected	11	Not Detected
Freon 11	1.1	Not Detected	6.0	Not Detected
Ethanol	11	Not Detected	20	Not Detected
Freon 113	1.1	Not Detected	8.2	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.2	Not Detected
Acetone	11	Not Detected	25	Not Detected
2-Propanol	4.3	Not Detected	10	Not Detected
Carbon Disulfide	4.3	Not Detected	13	Not Detected
3-Chloropropene	4.3	Not Detected	13	Not Detected
Methylene Chloride	11	Not Detected	37	Not Detected
Methyl tert-butyl ether	4.3	Not Detected	15	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.2	Not Detected
Hexane	1.1	Not Detected	3.8	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.3	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.3	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.2	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.2	Not Detected
Chloroform	1.1	0.46 J	5.2	2.2 J
1,1,1-Trichloroethane	1.1	Not Detected	5.8	Not Detected
Cyclohexane	1.1	Not Detected	3.7	Not Detected
Carbon Tetrachloride	1.1	Not Detected	6.7	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.0	Not Detected
Benzene	1.1	Not Detected	3.4	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.3	Not Detected
Heptane	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	5.8	Not Detected
1,2-Dichloropropane	1.1	Not Detected	4.9	Not Detected
1,4-Dioxane	4.3	Not Detected	15	Not Detected
Bromodichloromethane	1.1	Not Detected	7.2	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	4.8	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.4	Not Detected
Toluene	2.1	Not Detected	8.1	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	4.8	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	5.8	Not Detected
Tetrachloroethene	1.1	Not Detected	7.2	Not Detected
2-Hexanone	4.3	Not Detected	18	Not Detected



Air Toxics

Client Sample ID: VMP-15-21.5-103023-DUP

Lab ID#: 2310750A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110948	Date of Collection:	10/30/23 1:29:00 PM
Dil. Factor:	2.14	Date of Analysis:	11/10/23 01:01 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.1	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.2	Not Detected
Chlorobenzene	1.1	Not Detected	4.9	Not Detected
Ethyl Benzene	1.1	Not Detected	4.6	Not Detected
m,p-Xylene	2.1	Not Detected	9.3	Not Detected
o-Xylene	1.1	Not Detected	4.6	Not Detected
Styrene	1.1	Not Detected	4.6	Not Detected
Bromoform	1.1	Not Detected	11	Not Detected
Cumene	1.1	Not Detected	5.2	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.3	Not Detected
Propylbenzene	1.1	Not Detected	5.3	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.3	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.3	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.2	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.4	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.4	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.5	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.4	Not Detected
1,2,4-Trichlorobenzene	4.3	Not Detected	32	Not Detected
Hexachlorobutadiene	4.3	Not Detected	46	Not Detected
Butane	4.3	Not Detected	10	Not Detected
Isopentane	4.3	Not Detected	13	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	106	70-130



Air Toxics

Client Sample ID: VMP-15-25.5-103023

Lab ID#: 2310750A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110949	Date of Collection:	10/30/23 1:54:00 PM
Dil. Factor:	2.02	Date of Analysis:	11/10/23 01:27 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.0	Not Detected	5.0	Not Detected
Freon 114	1.0	Not Detected	7.1	Not Detected
Chloromethane	10	Not Detected	21	Not Detected
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,3-Butadiene	1.0	Not Detected	2.2	Not Detected
Bromomethane	10	Not Detected	39	Not Detected
Chloroethane	4.0	Not Detected	11	Not Detected
Freon 11	1.0	Not Detected	5.7	Not Detected
Ethanol	10	Not Detected	19	Not Detected
Freon 113	1.0	Not Detected	7.7	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Acetone	10	Not Detected	24	Not Detected
2-Propanol	4.0	Not Detected	9.9	Not Detected
Carbon Disulfide	4.0	Not Detected	12	Not Detected
3-Chloropropene	4.0	Not Detected	13	Not Detected
Methylene Chloride	10	Not Detected	35	Not Detected
Methyl tert-butyl ether	4.0	Not Detected	14	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Hexane	1.0	Not Detected	3.6	Not Detected
1,1-Dichloroethane	1.0	Not Detected	4.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.0	Not Detected	12	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Tetrahydrofuran	1.0	Not Detected	3.0	Not Detected
Chloroform	1.0	5.5	4.9	27
1,1,1-Trichloroethane	1.0	Not Detected	5.5	Not Detected
Cyclohexane	1.0	Not Detected	3.5	Not Detected
Carbon Tetrachloride	1.0	Not Detected	6.4	Not Detected
2,2,4-Trimethylpentane	1.0	Not Detected	4.7	Not Detected
Benzene	1.0	Not Detected	3.2	Not Detected
1,2-Dichloroethane	1.0	Not Detected	4.1	Not Detected
Heptane	1.0	Not Detected	4.1	Not Detected
Trichloroethene	1.0	Not Detected	5.4	Not Detected
1,2-Dichloropropane	1.0	Not Detected	4.7	Not Detected
1,4-Dioxane	4.0	Not Detected	14	Not Detected
Bromodichloromethane	1.0	Not Detected	6.8	Not Detected
cis-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
4-Methyl-2-pentanone	1.0	Not Detected	4.1	Not Detected
Toluene	2.0	Not Detected	7.6	Not Detected
trans-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
1,1,2-Trichloroethane	1.0	Not Detected	5.5	Not Detected
Tetrachloroethene	1.0	Not Detected	6.8	Not Detected
2-Hexanone	4.0	Not Detected	16	Not Detected



Air Toxics

Client Sample ID: VMP-15-25.5-103023

Lab ID#: 2310750A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110949	Date of Collection:	10/30/23 1:54:00 PM
Dil. Factor:	2.02	Date of Analysis:	11/10/23 01:27 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.0	Not Detected	8.6	Not Detected
1,2-Dibromoethane (EDB)	1.0	Not Detected	7.8	Not Detected
Chlorobenzene	1.0	Not Detected	4.6	Not Detected
Ethyl Benzene	1.0	Not Detected	4.4	Not Detected
m,p-Xylene	2.0	0.16 J	8.8	0.72 J
o-Xylene	1.0	Not Detected	4.4	Not Detected
Styrene	1.0	Not Detected	4.3	Not Detected
Bromoform	1.0	Not Detected	10	Not Detected
Cumene	1.0	Not Detected	5.0	Not Detected
1,1,2,2-Tetrachloroethane	1.0	Not Detected	6.9	Not Detected
Propylbenzene	1.0	Not Detected	5.0	Not Detected
4-Ethyltoluene	1.0	Not Detected	5.0	Not Detected
1,3,5-Trimethylbenzene	1.0	Not Detected	5.0	Not Detected
1,2,4-Trimethylbenzene	1.0	Not Detected	5.0	Not Detected
1,3-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
1,4-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
alpha-Chlorotoluene	1.0	Not Detected	5.2	Not Detected
1,2-Dichlorobenzene	1.0	Not Detected	6.1	Not Detected
1,2,4-Trichlorobenzene	4.0	Not Detected	30	Not Detected
Hexachlorobutadiene	4.0	Not Detected	43	Not Detected
Butane	4.0	Not Detected	9.6	Not Detected
Isopentane	4.0	Not Detected	12	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	107	70-130



Air Toxics

Client Sample ID: VMP-15-29-103023

Lab ID#: 2310750A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110950	Date of Collection:	10/30/23 2:21:00 PM
Dil. Factor:	1.94	Date of Analysis:	11/10/23 01:53 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.97	Not Detected	4.8	Not Detected
Freon 114	0.97	Not Detected	6.8	Not Detected
Chloromethane	9.7	Not Detected	20	Not Detected
Vinyl Chloride	0.97	Not Detected	2.5	Not Detected
1,3-Butadiene	0.97	Not Detected	2.1	Not Detected
Bromomethane	9.7	Not Detected	38	Not Detected
Chloroethane	3.9	Not Detected	10	Not Detected
Freon 11	0.97	Not Detected	5.4	Not Detected
Ethanol	9.7	Not Detected	18	Not Detected
Freon 113	0.97	Not Detected	7.4	Not Detected
1,1-Dichloroethene	0.97	Not Detected	3.8	Not Detected
Acetone	9.7	Not Detected	23	Not Detected
2-Propanol	3.9	Not Detected	9.5	Not Detected
Carbon Disulfide	3.9	4.7	12	14
3-Chloropropene	3.9	Not Detected	12	Not Detected
Methylene Chloride	9.7	Not Detected	34	Not Detected
Methyl tert-butyl ether	3.9	Not Detected	14	Not Detected
trans-1,2-Dichloroethene	0.97	Not Detected	3.8	Not Detected
Hexane	0.97	Not Detected	3.4	Not Detected
1,1-Dichloroethane	0.97	Not Detected	3.9	Not Detected
2-Butanone (Methyl Ethyl Ketone)	3.9	Not Detected	11	Not Detected
cis-1,2-Dichloroethene	0.97	Not Detected	3.8	Not Detected
Tetrahydrofuran	0.97	Not Detected	2.9	Not Detected
Chloroform	0.97	11	4.7	54
1,1,1-Trichloroethane	0.97	Not Detected	5.3	Not Detected
Cyclohexane	0.97	Not Detected	3.3	Not Detected
Carbon Tetrachloride	0.97	Not Detected	6.1	Not Detected
2,2,4-Trimethylpentane	0.97	Not Detected	4.5	Not Detected
Benzene	0.97	Not Detected	3.1	Not Detected
1,2-Dichloroethane	0.97	Not Detected	3.9	Not Detected
Heptane	0.97	Not Detected	4.0	Not Detected
Trichloroethene	0.97	Not Detected	5.2	Not Detected
1,2-Dichloropropane	0.97	Not Detected	4.5	Not Detected
1,4-Dioxane	3.9	Not Detected	14	Not Detected
Bromodichloromethane	0.97	0.36 J	6.5	2.4 J
cis-1,3-Dichloropropene	0.97	Not Detected	4.4	Not Detected
4-Methyl-2-pentanone	0.97	Not Detected	4.0	Not Detected
Toluene	1.9	Not Detected	7.3	Not Detected
trans-1,3-Dichloropropene	0.97	Not Detected	4.4	Not Detected
1,1,2-Trichloroethane	0.97	Not Detected	5.3	Not Detected
Tetrachloroethene	0.97	Not Detected	6.6	Not Detected
2-Hexanone	3.9	Not Detected	16	Not Detected

Client Sample ID: VMP-15-29-103023

Lab ID#: 2310750A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110950	Date of Collection:	10/30/23 2:21:00 PM
Dil. Factor:	1.94	Date of Analysis:	11/10/23 01:53 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.97	Not Detected	8.3	Not Detected
1,2-Dibromoethane (EDB)	0.97	Not Detected	7.4	Not Detected
Chlorobenzene	0.97	Not Detected	4.5	Not Detected
Ethyl Benzene	0.97	Not Detected	4.2	Not Detected
m,p-Xylene	1.9	Not Detected	8.4	Not Detected
o-Xylene	0.97	Not Detected	4.2	Not Detected
Styrene	0.97	Not Detected	4.1	Not Detected
Bromoform	0.97	Not Detected	10	Not Detected
Cumene	0.97	Not Detected	4.8	Not Detected
1,1,2,2-Tetrachloroethane	0.97	Not Detected	6.6	Not Detected
Propylbenzene	0.97	Not Detected	4.8	Not Detected
4-Ethyltoluene	0.97	Not Detected	4.8	Not Detected
1,3,5-Trimethylbenzene	0.97	Not Detected	4.8	Not Detected
1,2,4-Trimethylbenzene	0.97	Not Detected	4.8	Not Detected
1,3-Dichlorobenzene	0.97	Not Detected	5.8	Not Detected
1,4-Dichlorobenzene	0.97	Not Detected	5.8	Not Detected
alpha-Chlorotoluene	0.97	Not Detected	5.0	Not Detected
1,2-Dichlorobenzene	0.97	Not Detected	5.8	Not Detected
1,2,4-Trichlorobenzene	3.9	Not Detected	29	Not Detected
Hexachlorobutadiene	3.9	Not Detected	41	Not Detected
Butane	3.9	Not Detected	9.2	Not Detected
Isopentane	3.9	Not Detected	11	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2310750A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110942c	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/9/23 07:21 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	5.0	Not Detected	9.4	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	1.0	Not Detected	3.8	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

Client Sample ID: Lab Blank

Lab ID#: 2310750A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110942c	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/9/23 07:21 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	1.0	Not Detected	4.3	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Butane	2.0	Not Detected	4.8	Not Detected
Isopentane	2.0	Not Detected	5.9	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	95	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	108	70-130



Client Sample ID: CCV

Lab ID#: 2310750A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110939	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/9/23 06:08 PM

Compound	%Recovery
Freon 12	101
Freon 114	96
Chloromethane	74
Vinyl Chloride	85
1,3-Butadiene	74
Bromomethane	92
Chloroethane	82
Freon 11	97
Ethanol	70
Freon 113	96
1,1-Dichloroethene	75
Acetone	74
2-Propanol	76
Carbon Disulfide	92
3-Chloropropene	87
Methylene Chloride	81
Methyl tert-butyl ether	87
trans-1,2-Dichloroethene	78
Hexane	74
1,1-Dichloroethane	81
2-Butanone (Methyl Ethyl Ketone)	80
cis-1,2-Dichloroethene	85
Tetrahydrofuran	75
Chloroform	93
1,1,1-Trichloroethane	94
Cyclohexane	87
Carbon Tetrachloride	95
2,2,4-Trimethylpentane	76
Benzene	92
1,2-Dichloroethane	103
Heptane	100
Trichloroethene	95
1,2-Dichloropropane	85
1,4-Dioxane	94
Bromodichloromethane	94
cis-1,3-Dichloropropene	92
4-Methyl-2-pentanone	76
Toluene	96
trans-1,3-Dichloropropene	85
1,1,2-Trichloroethane	91
Tetrachloroethene	98
2-Hexanone	79

Client Sample ID: CCV

Lab ID#: 2310750A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110939	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/9/23 06:08 PM

Compound	%Recovery
Dibromochloromethane	98
1,2-Dibromoethane (EDB)	95
Chlorobenzene	90
Ethyl Benzene	90
m,p-Xylene	91
o-Xylene	88
Styrene	90
Bromoform	102
Cumene	92
1,1,2,2-Tetrachloroethane	90
Propylbenzene	92
4-Ethyltoluene	93
1,3,5-Trimethylbenzene	94
1,2,4-Trimethylbenzene	94
1,3-Dichlorobenzene	99
1,4-Dichlorobenzene	95
alpha-Chlorotoluene	81
1,2-Dichlorobenzene	100
1,2,4-Trichlorobenzene	107
Hexachlorobutadiene	108
Butane	75
Isopentane	82

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	109	70-130

Client Sample ID: LCS

Lab ID#: 2310750A-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110940	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/9/23 06:32 PM

Compound	%Recovery	Method Limits
Freon 12	99	70-130
Freon 114	96	70-130
Chloromethane	78	70-130
Vinyl Chloride	89	70-130
1,3-Butadiene	76	70-130
Bromomethane	96	70-130
Chloroethane	84	70-130
Freon 11	97	70-130
Ethanol	99	70-130
Freon 113	92	70-130
1,1-Dichloroethene	73	70-130
Acetone	76	70-130
2-Propanol	91	70-130
Carbon Disulfide	96	70-130
3-Chloropropene	88	70-130
Methylene Chloride	80	70-130
Methyl tert-butyl ether	87	70-130
trans-1,2-Dichloroethene	79	70-130
Hexane	74	70-130
1,1-Dichloroethane	81	70-130
2-Butanone (Methyl Ethyl Ketone)	81	70-130
cis-1,2-Dichloroethene	86	70-130
Tetrahydrofuran	82	70-130
Chloroform	91	70-130
1,1,1-Trichloroethane	93	70-130
Cyclohexane	88	70-130
Carbon Tetrachloride	93	70-130
2,2,4-Trimethylpentane	77	70-130
Benzene	92	70-130
1,2-Dichloroethane	104	70-130
Heptane	104	70-130
Trichloroethene	94	70-130
1,2-Dichloropropane	85	70-130
1,4-Dioxane	101	70-130
Bromodichloromethane	93	70-130
cis-1,3-Dichloropropene	93	70-130
4-Methyl-2-pentanone	75	70-130
Toluene	94	70-130
trans-1,3-Dichloropropene	85	70-130
1,1,2-Trichloroethane	92	70-130
Tetrachloroethene	98	70-130
2-Hexanone	79	70-130

Client Sample ID: LCS

Lab ID#: 2310750A-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110940	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/9/23 06:32 PM

Compound	%Recovery	Method Limits
Dibromochloromethane	96	70-130
1,2-Dibromoethane (EDB)	94	70-130
Chlorobenzene	90	70-130
Ethyl Benzene	92	70-130
m,p-Xylene	89	70-130
o-Xylene	89	70-130
Styrene	89	70-130
Bromoform	99	70-130
Cumene	91	70-130
1,1,2,2-Tetrachloroethane	91	70-130
Propylbenzene	92	70-130
4-Ethyltoluene	91	70-130
1,3,5-Trimethylbenzene	93	70-130
1,2,4-Trimethylbenzene	92	70-130
1,3-Dichlorobenzene	97	70-130
1,4-Dichlorobenzene	93	70-130
alpha-Chlorotoluene	80	70-130
1,2-Dichlorobenzene	98	70-130
1,2,4-Trichlorobenzene	102	70-130
Hexachlorobutadiene	109	70-130
Butane	76	70-130
Isopentane	82	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	109	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 2310750A-09AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110941	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/9/23 06:55 PM

Compound	%Recovery	Method Limits
Freon 12	98	70-130
Freon 114	95	70-130
Chloromethane	77	70-130
Vinyl Chloride	87	70-130
1,3-Butadiene	76	70-130
Bromomethane	95	70-130
Chloroethane	84	70-130
Freon 11	96	70-130
Ethanol	100	70-130
Freon 113	92	70-130
1,1-Dichloroethene	73	70-130
Acetone	76	70-130
2-Propanol	93	70-130
Carbon Disulfide	95	70-130
3-Chloropropene	87	70-130
Methylene Chloride	78	70-130
Methyl tert-butyl ether	87	70-130
trans-1,2-Dichloroethene	78	70-130
Hexane	73	70-130
1,1-Dichloroethane	81	70-130
2-Butanone (Methyl Ethyl Ketone)	81	70-130
cis-1,2-Dichloroethene	85	70-130
Tetrahydrofuran	81	70-130
Chloroform	89	70-130
1,1,1-Trichloroethane	91	70-130
Cyclohexane	86	70-130
Carbon Tetrachloride	93	70-130
2,2,4-Trimethylpentane	76	70-130
Benzene	93	70-130
1,2-Dichloroethane	105	70-130
Heptane	105	70-130
Trichloroethene	93	70-130
1,2-Dichloropropane	85	70-130
1,4-Dioxane	103	70-130
Bromodichloromethane	94	70-130
cis-1,3-Dichloropropene	92	70-130
4-Methyl-2-pentanone	76	70-130
Toluene	93	70-130
trans-1,3-Dichloropropene	85	70-130
1,1,2-Trichloroethane	91	70-130
Tetrachloroethene	98	70-130
2-Hexanone	79	70-130

Client Sample ID: LCSD

Lab ID#: 2310750A-09AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j110941	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/9/23 06:55 PM

Compound	%Recovery	Method Limits
Dibromochloromethane	96	70-130
1,2-Dibromoethane (EDB)	94	70-130
Chlorobenzene	90	70-130
Ethyl Benzene	91	70-130
m,p-Xylene	89	70-130
o-Xylene	90	70-130
Styrene	88	70-130
Bromoform	99	70-130
Cumene	91	70-130
1,1,2,2-Tetrachloroethane	90	70-130
Propylbenzene	91	70-130
4-Ethyltoluene	91	70-130
1,3,5-Trimethylbenzene	94	70-130
1,2,4-Trimethylbenzene	93	70-130
1,3-Dichlorobenzene	98	70-130
1,4-Dichlorobenzene	93	70-130
alpha-Chlorotoluene	80	70-130
1,2-Dichlorobenzene	97	70-130
1,2,4-Trichlorobenzene	102	70-130
Hexachlorobutadiene	108	70-130
Butane	77	70-130
Isopentane	82	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	110	70-130

11/13/2023

Mr. Samuel Fisher

AECOM

100 N. Broadway, 20th Floor

St. Louis MO 63102

Project Name: Roxana Quarterly Soil Vapor

Project #: 60697537-4.4.2

Workorder #: 2310750B

Dear Mr. Samuel Fisher

The following report includes the data for the above referenced project for sample(s) received on 10/31/2023 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker

Project Manager

**WORK ORDER #: 2310750B**

Work Order Summary

<b>CLIENT:</b>	Mr. Samuel Fisher AECOM 100 N. Broadway, 20th Floor St. Louis, MO 63102	<b>BILL TO:</b>	Accounts Payable Austin AECOM PO Box 203970 Austin, TX 78720
<b>PHONE:</b>	314-296-1969	<b>P.O. #</b>	150605
<b>FAX:</b>		<b>PROJECT #</b>	60697537-4.4.2 Roxana Quarterly Soil
<b>DATE RECEIVED:</b>	10/31/2023	<b>CONTACT:</b>	Vapor Brian Whittaker
<b>DATE COMPLETED:</b>	11/13/2023		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	VMP-55-20-103023	Modified ASTM D-1946	7.0 "Hg	10 psi
02A	VMP-15-5-103023	Modified ASTM D-1946	5.0 "Hg	10 psi
03A	VMP-15-21.5-103023	Modified ASTM D-1946	5.0 "Hg	10 psi
04A	VMP-15-21.5-103023-DUP	Modified ASTM D-1946	6.5 "Hg	10 psi
05A	VMP-15-25.5-103023	Modified ASTM D-1946	5.0 "Hg	10 psi
06A	VMP-15-29-103023	Modified ASTM D-1946	4.0 "Hg	10 psi
07A	Lab Blank	Modified ASTM D-1946	NA	NA
07B	Lab Blank	Modified ASTM D-1946	NA	NA
07C	Lab Blank	Modified ASTM D-1946	NA	NA
07D	Lab Blank	Modified ASTM D-1946	NA	NA
08A	CCV	Modified ASTM D-1946	NA	NA
08B	CCV	Modified ASTM D-1946	NA	NA
09A	LCS	Modified ASTM D-1946	NA	NA
09AA	LCSD	Modified ASTM D-1946	NA	NA
09B	LCS	Modified ASTM D-1946	NA	NA
09BB	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 11/13/23  
 \_\_\_\_\_

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA ELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program) CA300005-017  
 Eurofins Environment Testing Northern California, LLC certifies that the test results contained in this report meet all requirements of the 2016 TNI Standard.



**LABORATORY NARRATIVE**  
**Modified ASTM D-1946**  
**AECOM**  
**Workorder# 2310750B**

Six 1 Liter Summa Canister samples were received on October 31, 2023. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Since Nitrogen is used to pressurize samples, the reported Nitrogen values are calculated by adding all the sample components and subtracting from 100%.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

<i>Requirement</i>	<i>ASTM D-1946</i>	<i>ATL Modifications</i>
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a $\geq 95\%$ accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit.

**Definition of Data Qualifying Flags**

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit.

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the detection limit.

M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds  
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

**Client Sample ID: VMP-55-20-103023**

**Lab ID#: 2310750B-01A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.22	1.8
Nitrogen	0.22	76
Methane	0.00022	4.3
Carbon Dioxide	0.022	18
Ethane	0.0022	0.0018 J

**Client Sample ID: VMP-15-5-103023**

**Lab ID#: 2310750B-02A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.20	13
Nitrogen	0.20	81
Methane	0.00020	0.000089 J
Carbon Dioxide	0.020	6.0

**Client Sample ID: VMP-15-21.5-103023**

**Lab ID#: 2310750B-03A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.20	11
Nitrogen	0.20	80
Methane	0.00020	0.00012 J
Carbon Dioxide	0.020	8.9
Helium	0.10	0.46

**Client Sample ID: VMP-15-21.5-103023-DUP**

**Lab ID#: 2310750B-04A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.22	11
Nitrogen	0.22	80
Methane	0.00022	0.00013 J

**Summary of Detected Compounds  
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

**Client Sample ID: VMP-15-21.5-103023-DUP**

**Lab ID#: 2310750B-04A**

Carbon Dioxide	0.022	8.8
Helium	0.11	0.60

**Client Sample ID: VMP-15-25.5-103023**

**Lab ID#: 2310750B-05A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.20	3.8
Nitrogen	0.20	80
Carbon Dioxide	0.020	16

**Client Sample ID: VMP-15-29-103023**

**Lab ID#: 2310750B-06A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.19	3.4
Nitrogen	0.19	80
Carbon Dioxide	0.019	17



Air Toxics

Client Sample ID: VMP-55-20-103023

Lab ID#: 2310750B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110911	Date of Collection: 10/30/23 11:21:00 A
Dil. Factor:	2.19	Date of Analysis: 11/9/23 07:10 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	1.8
Nitrogen	0.22	76
Carbon Monoxide	0.022	Not Detected
Methane	0.00022	4.3
Carbon Dioxide	0.022	18
Ethane	0.0022	0.0018 J
Ethene	0.0022	Not Detected
Helium	0.11	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-5-103023

Lab ID#: 2310750B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110912	Date of Collection: 10/30/23 1:09:00 PM
Dil. Factor:	2.02	Date of Analysis: 11/9/23 07:36 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.20	13
Nitrogen	0.20	81
Carbon Monoxide	0.020	Not Detected
Methane	0.00020	0.000089 J
Carbon Dioxide	0.020	6.0
Ethane	0.0020	Not Detected
Ethene	0.0020	Not Detected
Helium	0.10	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-21.5-103023

Lab ID#: 2310750B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110913	Date of Collection: 10/30/23 1:29:00 PM
Dil. Factor:	2.02	Date of Analysis: 11/9/23 08:03 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.20	11
Nitrogen	0.20	80
Carbon Monoxide	0.020	Not Detected
Methane	0.00020	0.00012 J
Carbon Dioxide	0.020	8.9
Ethane	0.0020	Not Detected
Ethene	0.0020	Not Detected
Helium	0.10	0.46

J = Estimated value.

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-21.5-103023-DUP

Lab ID#: 2310750B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110915	Date of Collection: 10/30/23 1:29:00 PM
Dil. Factor:	2.15	Date of Analysis: 11/9/23 09:05 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	11
Nitrogen	0.22	80
Carbon Monoxide	0.022	Not Detected
Methane	0.00022	0.00013 J
Carbon Dioxide	0.022	8.8
Ethane	0.0022	Not Detected
Ethene	0.0022	Not Detected
Helium	0.11	0.60

J = Estimated value.

Container Type: 1 Liter Summa Canister



Client Sample ID: VMP-15-25.5-103023

Lab ID#: 2310750B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110916	Date of Collection: 10/30/23 1:54:00 PM
Dil. Factor:	2.02	Date of Analysis: 11/9/23 09:32 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.20	3.8
Nitrogen	0.20	80
Carbon Monoxide	0.020	Not Detected
Methane	0.00020	Not Detected
Carbon Dioxide	0.020	16
Ethane	0.0020	Not Detected
Ethene	0.0020	Not Detected
Helium	0.10	Not Detected

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: VMP-15-29-103023

Lab ID#: 2310750B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110933	Date of Collection: 10/30/23 2:21:00 PM
Dil. Factor:	1.94	Date of Analysis: 11/9/23 05:10 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.19	3.4
Nitrogen	0.19	80
Carbon Monoxide	0.019	Not Detected
Methane	0.00019	Not Detected
Carbon Dioxide	0.019	17
Ethane	0.0019	Not Detected
Ethene	0.0019	Not Detected
Helium	0.097	Not Detected

Container Type: 1 Liter Summa Canister



Client Sample ID: Lab Blank

Lab ID#: 2310750B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110904	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/8/23 08:43 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Nitrogen	0.10	Not Detected
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected
Ethane	0.0010	Not Detected
Ethene	0.0010	Not Detected

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2310750B-07B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110903c	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/8/23 08:20 PM

Compound	Rpt. Limit (%)	Amount (%)
Helium	0.050	Not Detected

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2310750B-07C

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110930	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/9/23 03:49 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Nitrogen	0.10	Not Detected
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected
Ethane	0.0010	Not Detected
Ethene	0.0010	Not Detected

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2310750B-07D

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110929c	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/9/23 03:25 PM

Compound	Rpt. Limit (%)	Amount (%)
Helium	0.050	Not Detected

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: CCV

Lab ID#: 2310750B-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110901	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/8/23 06:57 PM

Compound	%Recovery
Oxygen	100
Nitrogen	96
Carbon Monoxide	97
Methane	98
Carbon Dioxide	104
Ethane	100
Ethene	101
Helium	96

Container Type: NA - Not Applicable

Client Sample ID: CCV

Lab ID#: 2310750B-08B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110927	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/9/23 02:34 PM

Compound	%Recovery
Oxygen	100
Nitrogen	96
Carbon Monoxide	96
Methane	98
Carbon Dioxide	104
Ethane	100
Ethene	101
Helium	94

Container Type: NA - Not Applicable



Client Sample ID: LCS

Lab ID#: 2310750B-09A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110902	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/8/23 07:23 PM

Compound	%Recovery	Method Limits
Oxygen	102	85-115
Nitrogen	96	85-115
Carbon Monoxide	96	85-115
Methane	98	85-115
Carbon Dioxide	104	85-115
Ethane	100	85-115
Ethene	101	85-115
Helium	100	85-115

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCSD

Lab ID#: 2310750B-09AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110926	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/9/23 02:09 PM

Compound	%Recovery	Method Limits
Oxygen	102	85-115
Nitrogen	96	85-115
Carbon Monoxide	96	85-115
Methane	98	85-115
Carbon Dioxide	105	85-115
Ethane	100	85-115
Ethene	101	85-115
Helium	99	85-115

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCS

Lab ID#: 2310750B-09B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110928	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/9/23 02:58 PM

Compound	%Recovery	Method Limits
Oxygen	102	85-115
Nitrogen	96	85-115
Carbon Monoxide	97	85-115
Methane	98	85-115
Carbon Dioxide	104	85-115
Ethane	100	85-115
Ethene	101	85-115
Helium	99	85-115

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCSD

Lab ID#: 2310750B-09BB

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	11110953	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 11/10/23 08:35 AM

Compound	%Recovery	Method Limits
Oxygen	102	85-115
Nitrogen	96	85-115
Carbon Monoxide	97	85-115
Methane	98	85-115
Carbon Dioxide	104	85-115
Ethane	100	85-115
Ethene	101	85-115
Helium	99	85-115

Container Type: NA - Not Applicable